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**WIN 2K PIONEERS**
Early migrators discuss the challenges of moving to Microsoft's new operating system. Page 46

**START-UP PRIMER**
Eager to launch your own company? Expect huge risks, low pay and long hours. Page 74

**NEXT-GEN IT LEADERS**
Sears CIO Jerry Miller (left) reveals how to spot up-and-comers and get them the best leadership training. Page 51

# COMPUTERWORLD

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JULY 24, 2000 ▪ VOL. 34 ▪ NO. 30 ▪ $5 COPY

## GLOBAL MARINE GIVES CIO A SHOVE

*Restructuring cited; outsourcing possible*

BY JULIA KING

Veteran technology executive Dick Hudson was abruptly removed from his CIO post at Global Marine Inc. earlier this month as part of an ongoing restructuring at the Houston-based company, which has eliminated 30% of its information technology department and several key executive positions since Jan. 1.

Hudson, 59, Global's CIO for the past 18 years, received a surprise request from executives that he take early retirement from the $1.1 billion oil drilling company. His last day was July 7.

"Every company continually rejuggles responsibilities and

HUDSON: "If you look at it dispassionately, it makes a lot of sense"

moves different people into different jobs," said Tom Johnson, senior vice president of administration and acting CIO at Global. Hudson's departure, he added, "doesn't in any way diminish the importance we put on IT."

But Johnson also acknowledged that Global is considering outsourcing IT. "Just like a lot of other companies, we're

*Global Marine, page 16*

## INTRANET USERS TACKLE CHAOS

*Taxonomies, meta tags among improvements*

BY CAROL SLIWA
CHICAGO

Merrill Lynch & Co. has about 200 registered intranet sites. That's 40% more than it had a year ago, and that's a source of growing frustration for the users trying to navigate them.

"Coming to a site to find information is like going to a library where all the books are in random piles," said Renata Gorman, director of interactive technology at the company's private client group.

But the New York-based financial services company undertook a pilot project to bring order to the chaos, establishing a taxonomy for its sales force's Learning Network. Plans also call for taxonomies to connect Merrill Lynch's various Internet and intranet sites, said Gorman.

Merrill Lynch isn't alone.

Now that many companies have maturing intranets, they are trying to take them to the next level, making them better organized, easier to search and better equipped to take advantage of back-office data. Sever-

*Intranets, page 85*

## AVIS GOES WIRELESS TO FUEL EFFICIENCY

*Broadband system will capture digital signatures, speed customer service, repairs*

BY BOB BREWIN

Avis Group Holdings Inc. said last week that it will roll out broadband wireless LANs at about 700 car rental locations to speed up customer check-in and car returns. The high-speed wireless LANs will allow Avis to capture digital signatures from customers in real time and transmit the signed documents directly to the company's enterprise information system.

REAL-TIME WIRELESS

Since 1984, Avis lot attendants have used handheld wireless packet data terminals. But due to its relatively low bandwidth (approximately 8K bit/sec.), packet radio can't support digital signature capture and other applications that Larry Kinder, the company's senior vice president and CIO, said he wants to deploy.

Kinder said he sees the wireless LANs, which have a maximum throughput of 11M bit/

*Avis, page 85*

MARC BERLOW

TOM ZAVOS, a business systems manager at Kraft Foods, is responsible for a major e-commerce initiative. He's just the type of business strategist today's corporations want

## THE NEW IT WORKFORCE

**BAD NEWS FOR PURE GEEKS.** It used to be that lots of technical skills plus a little bit of business experience were ideal résumé entries. Not anymore. Companies are looking for hybrid business/IT professionals — with far more business and communications skills than ever before — and they're willing to go outside the IT department to get them.

*Story begins on page 48.*

NEWSPAPER

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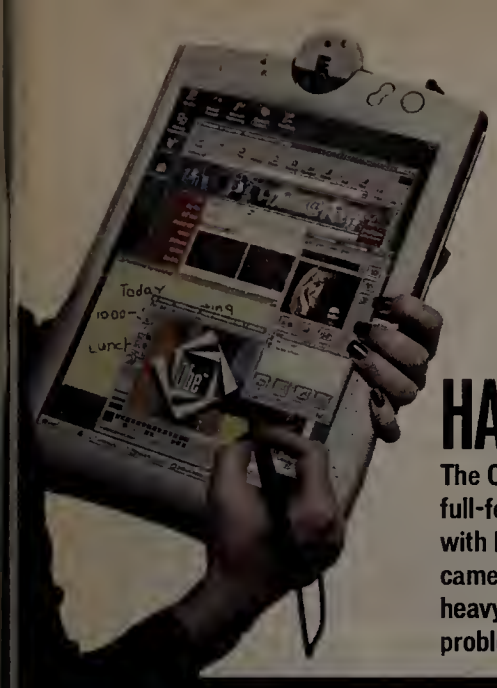

## HANDS ON

**The Qbe Cirrus is a full-size, full-feature tablet computer with built-in stylus, voice and camera input – but it's awfully heavy and marred by usability problems. Page 64.**

DARREL LECORRE/KLIX

## RULES OF ENGAGEMENT

**When TransCanada PipeLines and Nova Chemicals linked up in the biggest merger in Canada's history, it also yielded a pragmatic blueprint for merging very different IT organizations. One of the lessons CIO Russ Wells (pictured) learned: You can never communicate enough. Page 44**

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**66 RAM** and all of its many flavors is the topic of this week's concise tutorial.

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**68 THE FIRST HUMAN** tests of artificial retinas — silicon chips implanted in the eye — are under way.

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**72 OBLIX INC. MAKES** tools that let managers push the task of managing user-access permissions and profiles out to trusted users.


## This Week Online

■ This week on our **E-Commerce Community Page**, we introduce **Jim Sterne**, author, speaker and our newest columnist. Sterne will be writing about e-commerce issues on a monthly basis. This week he asks: Is your Web site customer-centric?

■ On our **Security Community Page**, reporter **Meghan Holohan** interviews **Jim Finn**, principal at Unisys World Wide Security Consulting Practice, who has conducted more than 200 security audits of companies around the world.

## OPINIONS


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**86 FRANK HAYES** writes that IT should have no illusions about who really calls the shots in e-commerce — the customer does.

## AT DEADLINE

### Feld Group Gets Softbank Backing

Last week, Softbank Venture Capital in Mountain View, Calif., took a minority stake in The Feld Group, which recently completed a two-year technology overhaul at Delta Air Lines Inc. in Atlanta.

Feld Group, an Irving, Texas-based consulting firm headed by information technology turnaround specialist Charlie Feld, will use the $40 million in venture funding to hire at least 100 employees and extend its services beyond Fortune 500 companies to small Internet start-ups. Feld stepped down from his position as Delta's "e-leader" last week and was replaced by former Citibank and American Airlines Inc. IT executive Bob DeRhodes.

### IBM Commercializes Supercomputer

IBM this week will launch a commercial version of its ASCI White supercomputer that was delivered to the U.S. Department of Energy last month. The system will represent a major overhaul of IBM's RS/6000 SP Unix servers and will feature new performance-enhancing copper microprocessors, silicon switching technology and new management software.

### Our Apologies

In last week's issue on page 32, opposite a white paper from SAS Institute, a "Dear *Computerworld* Reader" letter was published, endorsing SAS products and signed by our CEO and president, Joseph Levy. The letter had been intended only to accompany a separate marketing mailing, never to be printed in our pages where it could be mistaken for an editorial endorsement. *Computerworld* has always maintained a very strict separation between the advertising and editorial sides of our business, and the publication of "advertorials" violates our own code of ethics. Please accept our apologies for this mistake, and be assured it will not happen again. - *Maryfran Johnson, editor in chief*

# Trade Exchange Closes Virtual Doors

*M-Xchange.com cites a dearth of funding and pressure from transaction fees*

BY LEE COPELAND

AFTER LESS THAN six months in business, digital marketplace M-xchange.com Inc. closed its doors last week, citing a dearth of funding options and downward pressures in transaction fee-based business models.

And M-xchange.com has some company. Marketplaces IndustrialVortex.com Inc. and Fleetscape.com have both shut down in recent weeks. Analysts said they expect more closures and consolidations in the online exchange marketplace as start-ups face a funding crunch.

"[Venture capitalists] are just looking at the numbers of these exchanges, which are headed after the same set of suppliers and buyers, and they're deciding that there are too many in the market," said Barbara Reilly, an analyst at Gartner Group Inc. in Stamford, Conn.

Launched in mid-March, M-xchange.com styled itself as a horizontal exchange that would act as a liaison between large corporations and minority-owned suppliers. It received approximately $3.5 million from investors such as auto-parts maker Delphi Automotive Systems Corp. in Troy, Mich. It didn't yet have any clients.

### Fees Exert Downward Pressure

The Detroit-based company hoped to make money by charging transaction-based fees to participating firms but soon found that it couldn't charge the rates it planned to.

"When we began this project, people were talking about 1% to 3% in transaction fees," said Gary Wasserman, president of M-xchange.com. "Now it's one quarter of a percent and there's still downward pressure, and that drastically altered our revenue model."

Anticipating more difficulties finding financing, Wasserman said he and co-founder Roy Roberts, a former executive at General Motors Corp. in Detroit, decided to lay off the firm's 20 employees and return the remainder of its cash — about half of the initial investment — to investors.

"The trade exchanges tend to make money on transaction fees, which means less margin than a typical software firm, so they need a broader market to make the same amount of revenue," said Lisa Williams, an analyst at The Yankee Group in Boston. Getting that volume requires spending money on marketing, she added.

Other digital marketplaces have also experienced funding woes. IndustrialVortex.com, an industrial equipment marketplace that launched in May last year, recently closed its doors.

"We were unsuccessful in raising our second round of funding," wrote Chuck Steinberger, founder of IndustrialVortex.com, on a note posted on the Laguna Hills, Calif.-based company's now defunct Web site. Steinberger refused to comment on the business closure.

And FleetScape.com in Boston, billed as an electronic marketplace for commercial truck aftermarket parts and services, is ceasing operations after failing to secure additional funding, confirmed former CEO Sue Kampe.

AMR Research Inc. in Boston estimated that there are more than 2,000 online business-to-business exchanges in existence, but said it expects that number to drop to between 200 and 300 by 2002.

"Over half will never get beyond posting a Web site," said Kevin Prouty, an analyst at AMR. "Most had plenty of money for the technology infrastructure but not enough time to get a critical mass."

**MORE THIS ISSUE**
For more e-commerce news, see pages 10 and 12.

# Critics Urge Regulation of Airlines Market

*Online agency faces varied foes*

BY MITCH BETTS
WASHINGTON

Orbitz, an online travel agency being developed by the nation's top five airlines, ran into major turbulence at a U.S. Senate hearing last week. Consumer groups, travel agents, competitors — and one federal investigator — said the government should prevent Orbitz from gaining a monopoly on posting ultralow airline fares.

TERRY JONES, CEO of Travelocity.com, says, "The issue is fair and open access to [fare] information"

Orbitz claims that beginning this fall it will offer Web consumers the lowest airline fares available, using a Java-based search engine developed at MIT. Orbitz was founded by United Air Lines Inc., Delta Air Lines Inc., Continental Airlines Inc., Northwest Airlines Inc. and American Airlines Inc.

The fact that the Chicago-based joint venture is owned by the major airlines — which can control who gets fare information — has led to antitrust investigations by the U.S. Department of Justice and the U.S. Department of Transportation. But neither probe is finished.

The big concern is that the airline owners might post their most deeply discounted fares only on the Orbitz site, cutting out travel agents and other Web sites.

There's "a deep-rooted suspicion that when the major air carriers get together, some mischief is afoot," testified Kenneth Mead, inspector general at the Transportation Department.

Mead said the agency should require airlines to provide the same fares to all travel entities.

Terry Jones, CEO of rival Travelocity.com Inc. in Fort Worth, Texas, said he agreed. "The issue is fair and open access to [fare] information," he testified.

But Orbitz CEO Jeffrey Katz said his rivals are just seeking government intervention to keep out a new competitor. Katz said his company is trying to use advanced software to break into a business that is dominated by the "online travel duopoly" of Travelocity.com and Redmond, Wash.-based Expedia Inc.

"Some have characterized us as Internet big boys backed by airline bad boys. But we're an Internet start-up. We have huge obstacles to overcome to even become No. 3" in online travel bookings, Katz said.

### Antitrust Concerns Raised

Mark Silbergeld, a Washington-based spokesman for Consumers Union in Yonkers, N.Y., and the Consumer Federation of America in Washington, said the problem is "Orbitz is operating in the realm of verbal assurances" that it will be unbiased. He called for extensive antitrust regulation of the joint venture before the Web site is launched to make sure that Orbitz is unbiased.

"I'm very, very skeptical about this Orbitz effort," said Sen. Ron Wyden (D-Ore.). "We need safeguards, or else consumers will get fleeced again."

The hearing was held by the Senate Commerce Committee, chaired by Sen. John McCain (R-Ariz.). No additional committee hearings on Orbitz have been announced.

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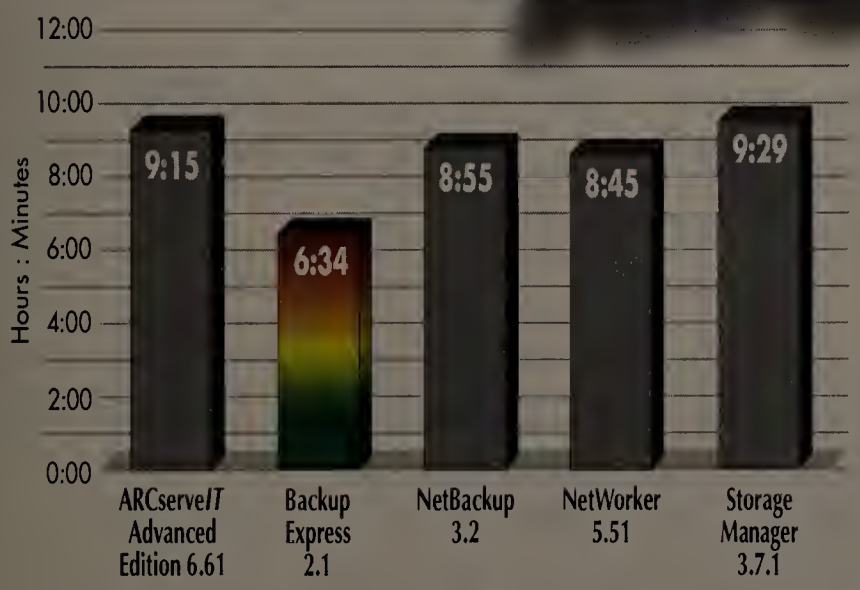
*Windows 2000 Magazine* Lab Report (June 2000)

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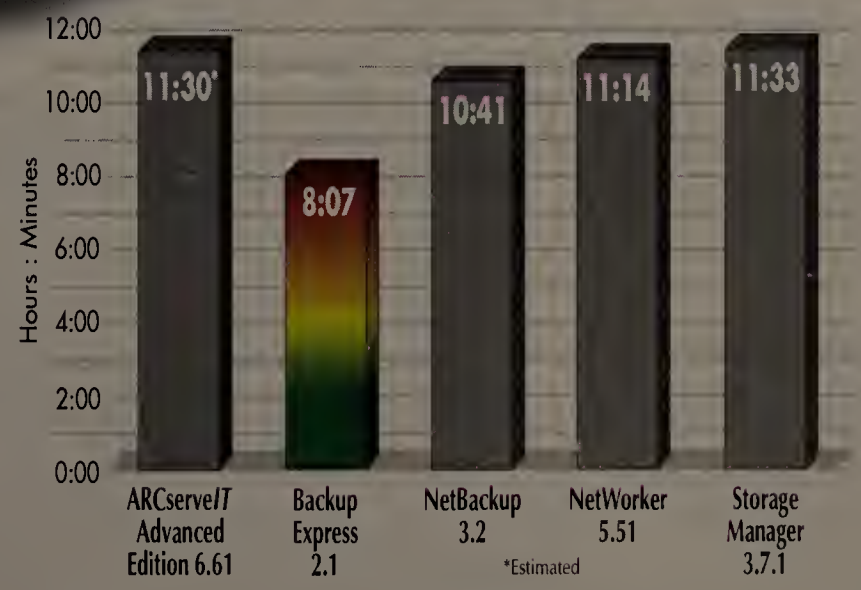


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# Latest Microsoft Bugs Exploit Outlook, IE Browser Errors

*No user interaction needed for attackers to infiltrate systems*

BY JAIKUMAR VIJAYAN

NEWS LAST WEEK of a new hole in Microsoft Corp.'s Outlook e-mail client software illustrates why sometimes even following safe security practices may not be protection enough for enterprises, analysts said.

The so-called buffer overrun vulnerability — initially discovered by an Argentinian security firm — allows a cracker to launch an attack that can proceed without the victim doing anything to trigger it.

All an attacker has to do to exploit the weakness is send an e-mail that, when downloaded from a mail server, could either crash the victim's system or cause malicious code to be run on it, said Russ Cooper, editor of Lindsay, Ontario-based NTBugtraq, a popular online security bulletin board.

Such code could then potentially let malicious attackers take any action on the victim's computer, including reformatting the hard drive, communicating with an external Web site or changing data on the computer, warned a Microsoft advisory.

## An Upgrade Work-Around

Microsoft said users could work around the problem by doing a full-version upgrade of their Web browser software either to Internet Explorer 5.5 or Service Pack 1 of IE 5.01.

Windows 2000 users with IE 5.5 will need to uninstall the software and reinstall the IE 5.01 service pack, the company added. A Microsoft spokeswoman said the company is working on a stand-alone patch that would eliminate the problem for users who choose not to do full-version browser upgrades.

Exploiting the weakness requires considerable skill on the part of the attacker, and not all Outlook users are affected, analysts said.

What made the hole so dangerous is that the vulnerability occurs when e-mail is being downloaded from the server, said Jesper Johansson, an assistant professor at Boston University and editor of the *SANS Windows Security Digest*.

Recipients don't need to open the mail — or even preview it — for the vulnerability to be exploited, Johansson said. "You don't have to go anywhere. ... I can send you an e-mail and it blows up your system," he said.

As a result, even following recommended safety practices — such as not opening attachments from unknown sources or disabling e-mail scripting functionality — would be of little help, analysts said.

Virus-scanning software that looks for malicious code in hard drives would be of little use either, since the vulnerability occurs before the mail is fully downloaded.

Similarly, filtering technologies designed to block e-mail attachments wouldn't work because with this hole crackers don't need attachments to smuggle in malicious code, analysts said.

News of last week's buffer overflow problem came less than a week after Microsoft posted a work-around for what analysts described as an equally dangerous hole in Microsoft's Access database management software.

The so-called IE script hole let crackers embed and execute malicious Visual Basic code in Microsoft's Access database management software via IE.

As with the buffer overflow problem, users could be compromised simply by visiting a rogue Web site or by previewing e-mail containing malicious code.

# Critics Knock Proposal For Surveillance Standards

BY ANN HARRISON

Privacy advocates said they're disappointed with a White House proposal designed to strengthen the laws governing Internet surveillance by law enforcement authorities.

The proposed legislation failed to temper alarm last week over the FBI's Carnivore surveillance system, which critics say can monitor an Internet service provider's network traffic.

"They addressed everything but Carnivore, and in my mind, it really was a camouflage to cover the mess that is Carnivore," said Barry Steinhardt, associate director of the New York-based American Civil Liberties Union (ACLU). "The problem with Carnivore is that it is a black box with all of the service's private traffic flowing through it, and the FBI has unlimited power. Tweaking some of the standards isn't going to solve the problem."

The ACLU and the Electronic Privacy Information Center in Washington filed a Freedom of Information request last week for all records, source code and object code related to Carnivore. The groups called on Congress to update federal privacy law to ban the system. A House subcommittee will hold hearings on Carnivore this week.

The legislative proposal, presented by White House Chief of Staff John Podesta, is intended to unify inconsistent laws governing the surveillance of telephone, cable and the Internet. It applies the stricter standards of telephone wiretaps and requires investigators to show probable cause to obtain a court order for scanning the content of a suspect's e-mail.

## Not a Response to Carnivore Flap

Linda Ricci, a spokeswoman for the Office of Management and Budget, said the legislative proposal has been months in the making and isn't a response to the Carnivore controversy. But she said it should ease concerns about misuse of the system. "[Carnivore] would only apply to a list of serious crimes. It must be approved by a high-level Justice Department official, and the information gathered in the interception would be suppressed in court if the rules weren't followed," she said.

EarthLink Inc., an Atlanta-based Internet service provider with 3.5 million subscribers, said last week that it had reached an agreement with the FBI that permitted EarthLink to deliver information requested in a court order as an alternative to the FBI installing Carnivore on the EarthLink network. The company resisted the deployment of Carnivore and an order preventing notification to customers but was initially overruled by a federal magistrate.

"We didn't feel comfortable having something on our network that we didn't have control over," said Kurt Rahn, EarthLink's senior public relations manger. "If we have to do it, we would rather have control over this sort of thing. Our members know their privacy is safe, and the FBI gets what it needs to do their job."

AT A GLANCE

## A Weak Case For Privacy

*David Sobel, general counsel of the Electronic Privacy Information Center, says proposed changes to wiretapping laws could hurt Internet privacy in two ways:*

- By weakening the tough restrictions against the monitoring of cable modems imposed by the Cable Act of 1984
- By removing notices now sent to the owners of e-mail when law enforcement officials access messages stored for more than 180 days on remote servers

# Companies Applaud Encryption Export

White House Chief of Staff John Podesta announced last week that the Clinton administration is lifting restrictions on exports of software with strong encryption to certain countries. Current regulations require a U.S. company wishing to export such software to obtain a license and to allow a technical review of the software.

Podesta said unregulated sales would be permitted to the 15 countries of the European Union as well as Australia, Norway, Hungary, Poland, Japan, New Zealand, Switzerland and the Czech Republic. Sales to other nations will still be subject to licensing and inspection by the U.S. Department of Commerce's Office of Strategic Trade.

Export restrictions are supported by law enforcement agencies concerned about the use of strong encryption by terrorists and hostile governments. But U.S. software companies have pressed hard to overturn the regulations, which they say put them at a competitive disadvantage.

Many large U.S. financial companies have already been granted exemptions from the export laws and are allowed to use strong encryption products overseas.

Stewart Noyce, vice president of marketing at Certicom Corp., an encryption technology provider in Hayward, Calif., said easing of the restrictions will streamline business processes and eliminate the need for costly legal counsel to review export requirements.

Certicom customer Qualcomm Inc. in San Diego, said lifting export restrictions will benefit both its bottom line and end users. "It will create a better environment for e-commerce, and people will feel more comfortable processing transactions online," said Dave Ross, director of product management for Qualcomm's Eudora e-mail clients. – *Ann Harrison*

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# BRIEFS

## Utility in Web Gaffe

U.K. utilities provider Powergen PLC last week said it had suffered a breach in security that caused sensitive information about its customers to be displayed on its Web site. A technical error resulted in customers' names and credit-card numbers being published on Powergen's Web site, the company said in a written statement. The company immediately took down the Web site when it was informed of the problem by a customer. The online transaction site remained closed after the incident, which the provider blamed on an error that left the file holding customer information "temporarily outside of the security gate of the system."

## Jobs Unveils G4 Cubes

It's a tradition for Apple Computer Inc. CEO Steve Jobs to spring some of the company's biggest product announcements during Macworld, and last week was no exception. Not only did Jobs announce dual-processor Power Mac G4s and a new series of iMacs, but he also unveiled an Apple first: a desktop machine in the form of an 8-in. cube, dubbed the Power Mac G4 Cube, which will be available next month.

## NYSE to Offer Live Stock Data

The New York Stock Exchange later this summer will launch an investor center on its NYSE.com Web site that will offer free real-time stock quotes. Currently, it offers only 20-minute delayed data for free; customers and brokers have to pay to receive real-time quotes. The Nasdaq Stock Market Inc. is also expected to announce free real-time quotes in the next few weeks.

## Samsung Sings E-Procurement Song

Samsung America Inc., a chemical, metals and textiles company in Ridgefield Park, N.J., is implementing e-procurement software from Burlington, Mass.-based Emptoris Inc. The Web-based software will be used by Samsung's commodity traders who are buying and selling at Internet marketplaces.

# Health Plans to Create Standard Processes

*Will make electronic communication easier*

BY JULEKHA DASH

A GROUP OF major health insurers is developing initiatives that will make it easier for doctors to communicate electronically with their health plans.

The Coalition for Affordable Quality Healthcare consists of 23 health plans, including Aetna Inc., Cigna Corp. and Oxford Health Plans Inc. The group's goal is to improve administrative efficiencies for physicians by establishing standards for processes such as submitting claims, credentialing physicians and checking patient eligibility, said Dr. Norman Payson, chairman and CEO of Trumbull, Conn.-based Oxford.

The time frame for most of the initiatives is between six and 12 months, though the physician credentialing effort is "imminent," said Payson.

Currently, doctors must supply their health plans with credentialing information, but each insurer has a different format, said Mark Anderson, a vice president at Stamford, Conn.-based Meta Group Inc. and a former hospital CIO.

"The ideal would be to create one credentialing standard so [physicians] can do it online and don't have to re-enter data," he said.

Although Payson acknowledged that many health plans already offer online services, he said establishing standards would make physicians more likely to use the Internet or electronic data interchange for such transactions, which would increase efficiencies and slash costs industrywide.

But analysts said that through the Health Insurance Portability and Accountability Act of 1996, which has yet to be implemented, the federal government has already established standards for electronic-health transactions.

In addition to creating standards, the coalition expects to establish a database of information on prescription drugs. Payson said physicians can compare various medications and look for less expensive alternatives.

If physicians are going to take advantage of this drug information, they need to receive it in real time, said Anderson. And physicians should have access to the data from a portable device, not just a PC, because doctors aren't deskbound, he said.

But according to Mike Davis, research director at Stamford, Conn.-based Gartner Group Inc., physicians, already wary of insurers, may not trust information supplied by a health plan.

### Cooperative Rx

*The coalition's plans for affordable, quality health care include:*

**Establishing** a standard template for verifying physicians' credentials, submitting claims and checking patient eligibility.

**Creating** a database of drug-related information.

**Getting** health plans to adopt a common format for benefits information on the Internet to make it easier for consumers to compare plans online.

# Mattel Wins Case Against Cybersquatter

*Porn site must stop using 'Barbie' name*

BY JENNIFER DISABATINO

A court this month invoked recent legislation protecting companies from cybersquatters when it ordered a pornographic Web site to stop using Mattel's trademark "Barbie" as part of its domain name.

Mattel Inc. in El Segundo, Calif., sued the porn site's parent company, Internet Dimensions Inc. in Fort Lauderdale, Fla., for trademark infringement when it discovered the Barbiesplaypen.com site. The U.S. District Court in the Southern District of New York issued a cease-and-desist order, and the site has shut down.

### Brand Protection

A Mattel spokeswoman said the company will defend its brand names, even if no complaints have been made by customers. "For us, it really is about enforcing our rights," said spokeswoman Lisa Marie Bongiovanni. "We have incredible equity in our brands."

Although she said she knew of no specific complaints by customers regarding Barbiesplaypen.com, Bongiovanni said Mattel won't risk a customer thinking it sponsors a porn site or any non-Mattel site.

The company will go after anyone who uses a Mattel trademark, she said. Phone calls and e-mail sent to Benjamin Schiff, Internet Dimensions' sole officer and employee, weren't returned.

"The case strengthens the ability of the marque owner to protect its marque from tarnishment from uses on the Web," said Robert Lytle, a legal expert on cybersquatting at Washington-based Howrey, Simon, Arnold & White LLP.

Passed last year, the Anticybersquatting Consumer Protection Act is intended to provide relief from cybersquatting — the practice of using someone else's name or brand to market other merchandise. In addition, it helps individuals and companies whose names are "held hostage" for a fee, Lytle said.

The law also provides immediate relief for victims of cybersquatting, Lytle said. A company or person can get an injunction on a Web site if the owner can't be found. The injunction forces the Web site's Internet service provider to de-activate the site.

# U.S. Wireless Banking Expands

BY MARIA TROMBLY

Early last week, Toronto-based 724 Solutions Inc. had the wireless banking field all but wrapped up, with several banks announcing that they would use the company's services.

Then Santa Clara, Calif.-based Edify Corp. jumped into the game with its announcement last Wednesday that Irvine, Calif.-based National InterBank will be adding Edify's wireless banking application to its S1 Retail Banking platform. Edify is a subsidiary of Atlanta-based S1 Corp.

Spokesman Ron Hynes said National InterBank customers will be able to make wireless transactions and pay bills from their bank accounts in September. The Internet bank, which has been live for seven months, has 8,500 customers but hopes to grow fast: In a few weeks, it will be launching a co-branded online bank with New York-based About.com Inc.

Customers of National InterBank will be able to access their accounts from any Wireless Application Protocol-enabled device, including Pocket PC personal digital assistants, many cellular phones and two-way pagers from Research in Motion Ltd. in Waterloo, Ontario. However, they won't be able to use Palm devices, said Warren Hill, strategic business director for wireless at Edify.

Although Edify provides wireless banking services for five other banks, this is the company's first deal in the U.S. The other banks are located in Japan, Europe and Australia, which are all a few months ahead of the U.S. in the wireless arena, Hill said.

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# FTC Warns Sites to Comply With Children's Privacy Law

*Web sites that get hits from kids under age 13 are warned legal action looms for noncompliance*

BY LINDA ROSENCRANCE

THE FEDERAL TRADE Commission (FTC) is warning Web sites that cater to children to comply with a new privacy law that took effect in April — or face its wrath.

Last week, the FTC announced that it's sending e-mail messages to "scores of Web sites" that target children to alert the sites that they could face legal action as early as September if they don't comply with the Children's Online Privacy Protection Act (COPPA).

The law requires Web sites that get traffic from children under the age of 13 to post a privacy policy detailing any personally identifiable information that's collected from those children. That includes data required to register as a user of a site and even data children may reveal in chat rooms or on posting services.

The FTC aims to ensure that Web sites collecting personal data from children are complying with COPPA "and that kids' information is protected, not exploited," Jodie Bernstein, director of the commission's Bureau of Consumer Protection, said in a statement.

AT A GLANCE

## Child-Friendly?

*Web sites affected by the Children's Online Privacy Protection Act must:*

- Post a privacy policy detailing the personal information they collect from children under 13.
- Have a parental notification and approval policy in place.
- List contact information such as mailing address, telephone number and e-mail address.

FTC staffers recently surfed the Internet to determine whether Web sites were in compliance with the act. They then sent e-mails to alleged offenders, according to an agency spokeswoman.

Violators could face civil penalties of $11,000 per violation, and the commission said it has a number of private investigations under way. The spokeswoman said she couldn't release specifics about the names or number of sites that were found to be noncompliant.

One site that claims to now be complying with the act is Beanie Babies manufacturer Ty Inc. In April, Ty didn't list its corporate contact information as required by COPPA, even though children can register to participate in online chats on the company's Web site. However, the Oak Brook, Ill.-based company now prominently posts its privacy policy and lists all pertinent contact information. The site also states that it adheres to COPPA.

Meanwhile, Santa Clara, Calif.-based Yahoo Inc., which operates Yahooligans, a Web guide for children, has been in compliance since May 1999, according to a Yahoo spokeswoman.

However, Yahoo and Ty appear to be exceptions to the rule. "A lot of sites have been lackadaisical," said Parry Aftab, a lawyer at New York-based Darby & Darby who has been working closely with the FTC on children's online privacy issues. Aftab said many organizations tried to become COPPA-compliant by April 21 because they expected the FTC to crack down on them. But when the FTC failed to take action, "those sites basically thumbed their noses at the FTC because they felt there were no teeth in the law," Aftab said.

Not every consumer advocacy group supports the FTC's enforcement plans, however. A spokesman for Dallas-based EmailAbuse.org said the FTC is wasting taxpayers' money on enforcing legislation that misses the mark in protecting children's privacy. ◗

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# Congress Passes Antispam Bill

*Measure would inhibit flood of online junk mail*

BY JENNIFER DISABATINO

The U.S. House of Representatives overwhelmingly passed an antispam bill last week that would prohibit commercial e-mail messages from being sent to recipients who have asked to be removed from a sender's mailing list.

The measure, which passed by a vote of 427-1, would also prevent companies from sending out messages with inaccurate return addresses that make it impossible for recipients to unsubscribe from mailing lists.

The bill's chief sponsor, Rep. Heather Wilson (R-N.M.), said passage of the act was the culmination of more than a year of coalition-building after antispam bills with similar intent became bogged down in Congress two years ago. "We are one big step closer to providing consumers with the ability to free themselves from the annoying and sometimes offensive flood of junk e-mail clogging their computers," Wilson said in a statement.

However, at least one analyst questioned whether this bill has any teeth.

"I would label this particular bill that passed as a typical election-year bill. It doesn't do anything. It doesn't hurt anybody. It's useless, or maybe even worse than useless. But it makes Congress look good," said Richard H. Caro, vice president of ARC Advisory Group Inc. in Dedham, Mass.

## Senate Mulling Antispam Lite

John Mozena, co-founder of advocacy group the Coalition Against Unsolicited Commercial Email (CAUCE), said he's pleased with the vote. Unsolicited commercial e-mail, known as spam, chews up bandwidth and disk space, necessitates filtering technology for Internet service providers and wastes recipients' time, he said. CAUCE estimates that at least one in every 10 e-mail messages is spam.

The U.S. Senate is also considering antispam legislation, sponsored by Sen. Conrad Burns (R-Mont.). But unlike the House measure, the Senate version doesn't give spam recipients the right to sue firms that send the messages. ◗

*Margret Johnston of the IDG News Service contributed to this article.*

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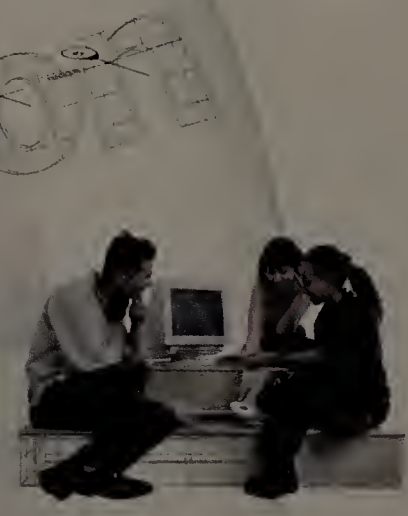

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## BRIEFS

### States Join to Enter Toysmart Controversy

A group of attorneys general from 39 states last week asked the U.S. Bankruptcy Court in Boston to block the controversial sale of Toysmart.com's customer data that the failed online toy retailer has proposed as part of an ongoing liquidation process. Led by Tom Reilly, Massachusetts' attorney general, the states group said in its objection that the proposed sale of Toysmart's customer lists and related information would violate the Waltham, Mass.-based company's promise to consumers that it wouldn't sell their personal data to any third parties.

### Lucent Jettisons Microelectronics

Lucent Technologies Inc. in Murray Hill, N.J., will spin off its $4 billion microelectronics business to focus on the networking industry. The microelectronics company, to be named later, manufactures optoelectronic components and integrated circuits. Lucent is planning an initial public offering for up to 20% of the new company in the first quarter of next year. The spin-off is expected to be completed by next summer.

### Short Takes

BLOCKBUSTER INC. in Dallas has announced a 20-year, exclusive agreement to deliver a Blockbuster entertainment service, initially featuring movies on demand, via the Enron Intelligent Network. . . . Germany's BERTELSMANN AG has agreed to acquire the money-losing online music retailer CDNOW INC. for approximately $117 million. . . . Boston-based information technology consulting firm KEANE INC. has acquired DENVER MANAGEMENT GROUP, a consulting firm with expertise in customer relationship management . . . . Legislation was introduced to both houses of CONGRESS that would prevent employers from monitoring their employees' electronic communications. . . . The HOUSE OF REPRESENTATIVES passed an amendment that forces federal agencies to show how they collect personal data from the Internet. . . . STANDARD & POOR'S said PALM INC. will replace 3COM CORP. in its S&P 500 index.

# DaimlerChrysler in Hot Pursuit of Rivals Online

*But analysts say automaker trails GM, Ford*

BY LEE COPELAND

AFTER IDLING for months, DaimlerChrysler AG has launched an extensive upgrade to its U.S. consumer Web sites and last week expanded Web services to its top-notch Five Star dealers.

But despite the upgrades, which include improved access to vehicle prices, the firm continues to trail rivals General Motors Corp. and Ford Motor Co. in terms of its online capabilities, analysts said.

For example, GM launched Gmbuypower.com two years ago and added new features, such as payment calculation, dealer look-up and links to third-party sites for comparison shopping in April. And Ford created an independent company with Trilogy Software Inc. in February to operate its consumer Web sites.

Officials at Stuttgart, Germany-based DaimlerChrysler said the company was laying the groundwork for a wide-scale upgrade, which now gives dealers and consumers access to internal databases and financing systems.

Through the Five Star dealer Web sites, car shoppers can search a dealer's inventory for vehicle availability, configure models for colors and options, get suggested pricing and apply for online financing.

The Web initiative should save consumers time before they visit a dealer because they will be able to check for specific vehicles and learn the manufacturer's suggested retail price, said Tom Peyton, senior manager of e-commerce at DaimlerChrysler in Auburn Hills, Mich. Although the sites won't list the final price of the vehicles, he said, they will include messaging boards from which consumers can negotiate prices with dealers.

"Customers want to see the price, the invoice price and the price to buy for today, and the second thing they want is inventory," said Peyton.

Of DaimlerChrysler's 4,500 dealers in the U.S., 2,400 are Five Star dealers, which means they have met strict customer service criteria set by the firm. For example, Five Star dealers guarantee that they will answer Web leads and respond to electronic pricing requests within 24 hours, Peyton said.

"We hope that this will be an additional incentive for [non-Five Star dealers] to change their processes," he added.

Analysts said DaimlerChrysler's efforts still fail to meet the needs of car buyers.

"If consumers expect to be overwhelmed by a consumer-friendly process that is all online, they are going to be disappointed" by DaimlerChrysler's Web site upgrades, said Adam Weiner, an analyst at Gomez Advisors Inc. in Lincoln, Mass.

Still, DaimlerChrysler's enhanced Web presence is a critical first step that's needed for the firm to stay on par with its rivals, said Hiro Mori, an analyst at Automotive Consulting Group Inc. in Ann Arbor, Mich.

However, "it looks a bit late compared to GM and Ford," he said. "It's a patchwork and was put together quickly, and you're still not getting pricing."

DAIMLERCHRYSLER'S site will let customers search dealers' inventories for cars such as the 2000 Prowler (above) and get suggested pricing

# Microsoft Adds Cookie Controls to Browser

BY TODD R. WEISS

Microsoft Corp. last week announced plans to test new features in its Internet Explorer browser that are supposed to give users more control over cookies that can track their online surfing activities.

Privacy advocates called the action a good first step, though several online vendors said the developments will have few effects on their Web sites.

Microsoft said it's releasing the "privacy-enhancing" features to about 2,000 users for beta testing with the Windows version of Internet Explorer 5.5, which was made available for downloading two weeks ago. Within four weeks, the company hopes to release a public beta version.

A key element among the changes is a "delete all cookies" button to more easily get rid of cookies stored on a user's hard drive, as well as a pop-up box that appears when a third-party cookie arrives from an outside Web advertiser that contracts with a site.

Cookies are small pieces of information that a Web site can automatically place on a hard drive. The site can then use the cookie to collect data such as the visitor's ZIP code or a history of what a customer visits on the site. That information can be used for marketing or to personalize the person's next visit. Identifying information such as a visitor's name can also be connected to the other data.

For clothing retailer Lands' End Inc. in Dodgeville, Wis., the new controls may not have a major impact because the firm uses nonidentifying cookies only to help customers place personalized clothing orders, not to track their online movements, said spokeswoman Beverly Holmes. "The ways we're using them, we believe, are the ways most customers want us to use them," she said.

Similar policies are in use at online and television shopping channel QVC Inc. in West Chester, Pa., according to Eric Gregg, QVC's director of interactive systems. QVC uses only randomly generated, temporary cookies when an online customer opens a shopping basket to make purchases, and the cookie is deleted when the purchase is made or aborted.

Mark Rotenberg, executive director of the Electronic Privacy Information Center in Washington, said that although the new controls offer better protections, the existence of cookies still leaves users vulnerable because no one really knows how deep cookies go to get information. "I think a lot of the problems with cookie management remain," he said.

### Keeping Cookies Under Control

*New features in the Internet Explorer 5.5 beta:*

- Consumer notification to differentiate between cookies from the site being visited and a third-party advertiser
- Automatic user prompts when a third-party cookie is being offered by a site
- A "delete all cookies" control button on the main options page to make removal easier
- New topics on the help menu to better answer questions about cookies and their management

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# Suits, Geeks Seek Open-Source Entente

*Can commercial firms tap into open source without offending 'hacker ethic'?*

BY DOMINIQUE DECKMYN
MONTEREY, CALIF.

BUSINESSPEOPLE are trying to understand how they can turn the open-source phenomenon to their advantage. And open-source advocates are gradually learning to speak the language of business.

The O'Reilly Open Source Software Convention here has become the meeting place between the informality of geek culture and the buttoned-down business world.

OPEN SOURCE

For example, at last week's event, information technology vendors and user companies came to learn how to develop open-source projects without incurring the ire of the community. At the same time, open-source guru Eric Raymond explained how to talk about the free source-code market to business executives.

The term *open source* was created in 1998 by advocates who hoped it would be more palatable to commercial companies than the alarming term *free software*. In the past two years, commercial vendors have embraced open source for selected products. The latest is Sun Microsystems Inc., which last week released the code to StarOffice (see story, this page).

An emerging entente between commercial principles and the "hacker ethic" was evident at the show. "There are lots of ways to address open source," said Russell Pavlicek, a technical consultant for Linux technologies at Compaq Computer Corp. Pavlicek said vendors shouldn't necessarily publish all their source code — "though [Free Software Foundation President] Richard Stallman would like you to."

Brian Behlendorf, a founding member of the Apache Web server project, said he believes the methodologies and freely available tools of the open-source community can benefit corporate IT departments — regardless of whether these IT groups decide to contribute to the open-source community themselves. It's a conviction he's putting into practice with his new company, San Francisco-based CollabNet Inc., which helps commercial businesses hook up with open-source developers.

"What we try to do is model what goes on in the Internet inside one company," said Behlendorf. That includes "helping engineers think like open-source developers," he added.

One of the things corporate IT departments can learn is the value of peer review, where anyone interested in doing so gets to see and criticize code. This creates rapid feedback loops, according to Behlendorf.

### Holy Grail of Reuse

Using free, open-source components "is the Holy Grail of software reuse," said Behlendorf. A possible downside: "You have to realize that the concept of schedules and delivery dates has to be more flexible," he said.

But IT skepticism remains strong. Brent Michalski, a senior software engineer at MasterCard International Inc. in St. Louis, Mo., uses open-source technologies like Perl and Apache for development purposes. But "when we go into production, they want to use Microsoft or Netscape," he said.

Some of the hackers, in contrast, are uncomfortable with "the suits moving in," said show organizer Tim O'Reilly. Hardcore hackers will move out of the mainstream open-source projects, he predicted. "They will be doing the really cool stuff that we will be hearing about in 10 or 15 years," he said.

## Trying to Understand Each Other

**Tips on how commercial businesses can work with open-source developers, from Russell Pavlicek, a technical consultant for Linux technologies at Compaq:**

- Always tell the truth, even if it means being rude. The geek culture hates lies.
- Develop a thick skin. Everything you do, including coding and marketing, will be criticized.
- Work with the community, involving it from the beginning. Don't just spit out code.
- Admit to errors. Fix problems such as bugs or misleading marketing statements in Internet time.
- Talk code over a beer. Don't get drunk.
- Realize that geek culture isn't antisocial; it just has its own social goals.

**Tips on how open-source advocates should talk to businesspeople, from open-source guru Eric Raymond:**

- Don't wear a suit – you'll look like a geek doing a bad impression of a businessperson.
- Don't let yourself think businesspeople are stupid – think of them as differently abled.
- Always address people in language they understand. When talking to businesspeople, use business language.
- When talking to midlevel executives, talk about how open source saves money. With top-level executives, talk about how open source avoids risk.

## Are Open-Source Licenses Legal?

For all the media attention devoted to the open-source movement, the legal standing of licenses such as the GNU General Public License (GPL) has received little attention. But there's some concern among open-source advocates.

"The biggest issue is that none of these licenses have been tested in court," said Apache project co-founder Brian Behlendorf at the O'Reilly Open Source Software Convention last week.

Open-source licenses don't fit well with what the courts expect a mass sales agreement to look like, said Don Rosenberg, a software licensing consultant and author of the forthcoming book *Open Source: The Unauthorized White Papers*. The GPL attempts to bind users by requiring them to make public the source code to any commercial products based on the GPL code.

"The courts generally, but not always, hold that 'shrink-wrap' licenses – that is, those that simply come with the software – can't bind the receiving party unduly," said Rosenberg. But the Uniform Computer Information Transaction Act, passed in only a couple of states so far, would strengthen shrink-wrap licenses and thus could also make open-source licenses stronger, Rosenberg said. – *Dominique Deckmyn*

# Sun Goes Open Source With Office Software

*Onetime critics applaud as vendor releases StarOffice under GNU license*

BY DOMINIQUE DECKMYN
MONTEREY, CALIF.

Sun Microsystems Inc. has decided to release the source code for its StarOffice office productivity suite under the GNU General Public License (GPL). The announcement received much attention at the O'Reilly Open Source Software Convention here on Wednesday, with many open-source advocates applauding the move.

Sun is positioning StarOffice as a replacement for Microsoft Office 2000. StarOffice, which runs on Windows, Linux and Solaris, joins other open-source suites, including Durham, N.C.-based Red Hat Inc.'s Gnome Office.

Sun has released other products, such as its Java programming language, under the Sun Community Source License, a licensing model that has been met with much criticism from the open-source community. In contrast, GPL is used by open-source projects such as Linux.

### Linuxlike Impact Sought

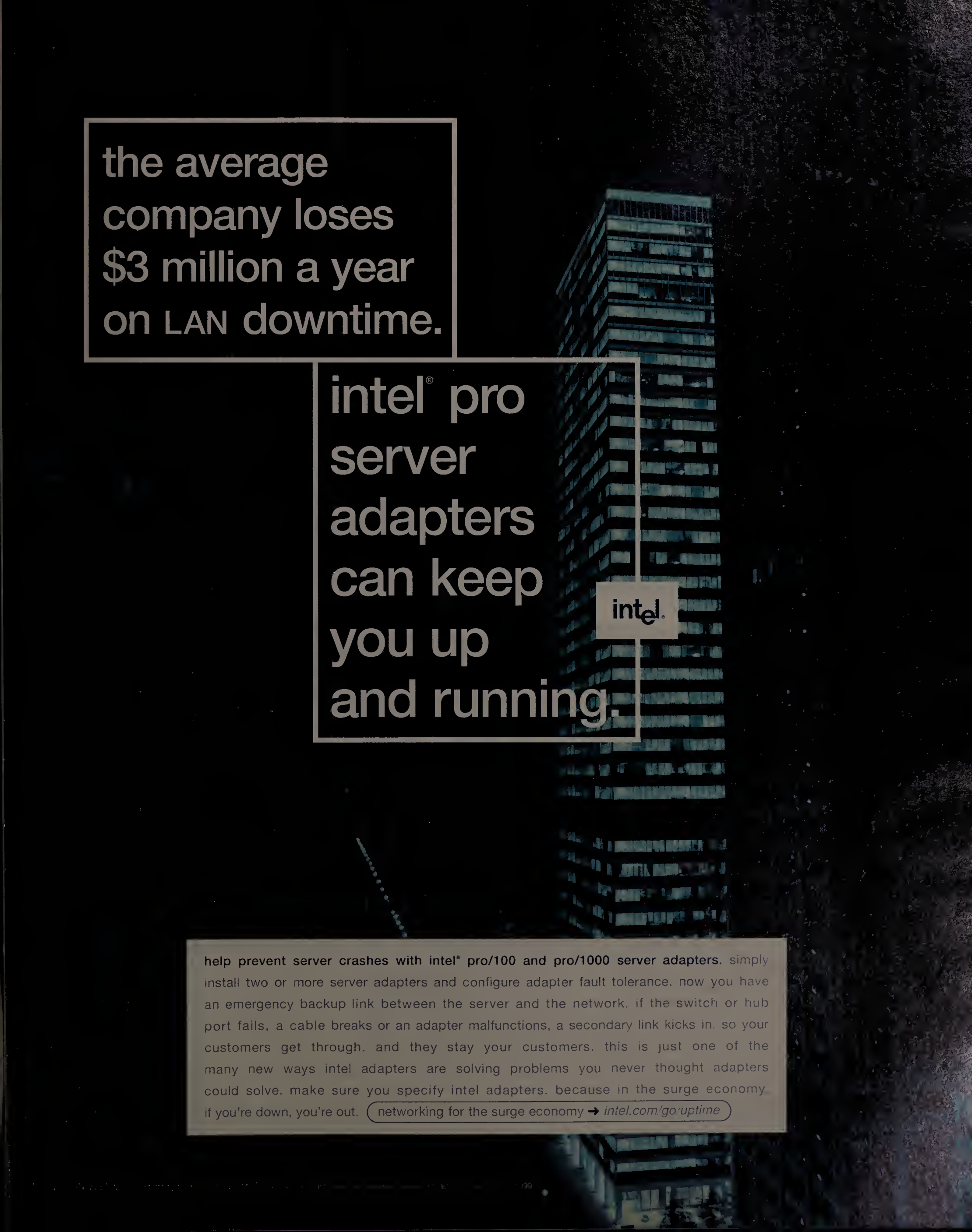
"We wanted to have the same impact on office suites that Linux has had on operating systems, and the only way to do that is the GPL," explained Marco Boerries, Sun's vice president and general manager of Web-top and application software. Boerries joined Sun last year when it acquired Star Division Inc., which he founded.

"It's wonderful," said open-source advocate Eric Raymond, who has been a vocal critic of the Sun Community Source License. "They have finally figured out that they screwed up before [with Java]."

In late summer or early fall, Sun will release a Web-based version of StarOffice called StarPortal. The product will be free, but Boerries said the company hasn't yet decided whether it will release the source code. Service providers may host it and charge a fee, or enterprises can install it free on their own servers, said Boerries. StarPortal will run on Solaris, Windows 2000 and Linux.

Microsoft Corp. executives have discussed plans to launch a Web-based version of Office called Office.net but haven't released shipping dates or other information.

"StarOffice being open source makes a great difference [because] an attempt could be made to port it to run on other platforms," said Rich Smrcina, a systems software specialist at Milwaukee-based Grede Foundries Inc., a $600 million producer of metal castings. "Being free probably doesn't make so much of a difference; a nominal charge would be acceptable."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# Bank Outsources Messaging Apps to HP

*Pay-as-you-go model will help trim costs*

BY JAIKUMAR VIJAYAN

THE CANADIAN Imperial Bank of Commerce (CIBC) has outsourced its entire messaging infrastructure to Hewlett-Packard Co., offering an endorsement of HP's efforts to expand into the application service provider (ASP) market.

HP will host and manage all mail and messaging services for more than 40,000 CIBC employees worldwide. Toronto-based CIBC is one of North America's largest banks.

CIBC's decision to outsource mission-critical services such as messaging and mail services is indicative of the growing interest in the ASP model, said Mark Levitt, an analyst at International Data Corp. in Framingham, Mass.

"Announcements like these are an important milestone that serves to confirm" the value of ASPs, Levitt said.

The pay-as-you-go arrangement with HP will allow CIBC to simplify its messaging infrastructure and drive down the costs of managing it, said Tom Strong, the bank's chief technology officer.

Previously, there was no reliable way for CIBC to separate — or even accurately estimate — the costs of providing messaging services from other services provided to various business units by the information technology organization.

Under the per-user pricing model offered for HP's Messaging-on-Tap service, CIBC now has a pricing structure that is "nicely predictable and sensible," Strong said. CIBC will save approximately $5 million annually in management costs related to messaging alone, he said.

ASP offerings such as HP's provide a contractual pay-as-you-go application service that customers access remotely.

Unlike traditional outsourcers and hosting services, where the focus is either on handling entire business processes or managing components of the infrastructure, ASPs such as HP focus on hosting and managing applications. And unlike those other services, in which technologies are deployed depending on customer needs, ASPs deliver service from a single common infrastructure.

This provides for better scalability and control over the environment, said Frank Barker, an HP vice president.

For instance, HP's Messaging-on-Tap service was designed to be a one-to-many application service that users such as CIBC subscribe to for a specific period, Barker said.

It was previously believed that such services would primarily appeal to small and midsize businesses trying to get away from the costs involved in buying hardware and licensing application software, Levitt said.

## What's on Tap

*Examples of HP's E-Services:*

**Messaging-on-Tap:** Messaging and mail services on a subscription basis

**Infrastructure-on-Tap:** Rentable hardware, software and network infrastructure

**IP-Billing-on-Tap:** Hosted billing services

**E-Learning-on-Tap:** Subscription-based educational/tutorial services

# Survey: Few Companies Ready to Outsource to ASPs

*Users concerned by loss of control*

BY LEE COPELAND

Although many companies may want to unburden themselves from maintaining software applications, the majority of large and small businesses aren't ready to turn over applications to a service provider, according to research released last week by Cahners In-Stat Group.

Users said that's because they have concerns about losing control over critical business applications and security and about having difficulty finding application service providers (ASP) that support industry-specific applications.

According to the survey of 228 companies that have more than 100 employees, 6.4% would consider outsourcing an application with an ASP. Of 118 firms with fewer than 100 employees, 12% would consider using an ASP.

"ASPs have only been a real topic of conversation for the last 18 months," said Kneko Burney, an analyst at Cahners In-Stat Group in Newton, Mass. "ASPs are asking customers to give them core business operations, but even the big companies are unsure of how to evaluate them."

Burney said both small and large firms preferred using old-line technology vendors such as Hewlett-Packard Co. and IBM or telecommunications companies such as AT&T Corp. rather than ASP start-ups. She added that those looking for ASP services were most interested in support for vertical applications.

The opposite is also true: Some vertical applications are so specialized it's unlikely that ASPs would find the talent to customize and run them.

Greg Fowl, manager of information technology at Gate City Steel Inc., said his firm fits that profile because the Indianapolis-based steel processor uses specialized software that is unique to its industry.

"It's very difficult in our industry to use outside folks," said Fowl. "If we found someone to support [our application], then an ASP might be an option."

Chuck Lewis, IT manager at Lee Supply Corp. in Indianapolis, said his firm also wouldn't use an ASP.

"The biggest thing is perceived loss of control and security," he said. "It would be something to look at in the future as ASPs offer more value-added services and as the market matures."

Still, Cahners In-Stat predicts the market will grow dramatically, from the estimated $10 million spent on ASP services by small businesses this year to $7 billion by 2004.

## Survey Says

*Only a small percentage of firms are willing to use ASPs.*

**6.4%** of companies with 100 employees or more would consider using an ASP this year.

**12%** of companies with fewer than 100 employees would consider using an ASP this year.

SOURCE: CAHNERS IN-STAT GROUP, NEWTON, MASS.

*Continued from page 1*

# Global Marine

looking at [application service providers]," he said.

"It was not a cost-cutting move, and it was not at all related to Dick's administration of the department or his performance," he added.

Hudson is an occasional *Computerworld* columnist and a Premier 100 award winner.

IT has been under pressure at Global since well before Hudson's departure. This year, Global has cut nine jobs in the IT group, which now stands at 25 people.

Other cost-cutting moves at the company include closing a drilling operations office in the Netherlands and eliminating senior positions in the tax and personnel departments, which together should reduce overhead expenses by 10% to 15%, company insiders said.

Contacted at his home in Houston, Hudson said the restructuring "makes sense."

"If you look at it dispassionately, it makes a lot of sense. Lower costs mean higher profits. But I'd still rather not have been caught up in it," he said.

In January, Global executives told analysts about plans to reduce costs by $5 million by the end of the first quarter, said Poe Fratt, an oil service industry analyst at A. G. Edwards & Sons Inc. in St. Louis.

But Global Marine, which operates 32 offshore oil drilling rigs around the world, is "not in [financial] trouble at all," Fratt emphasized. Instead, the cost-cutting and layoffs are "more a reflection of internal restructuring and trying to do things better," he said.

Other analysts noted that Global Marine may be a good candidate for outsourcing because it uses relatively plain technologies to exchange information among its various sites.

Another theory is that Global assumed that, as oil prices rose, the big oil companies would release more funds for drilling and business would increase. But that didn't pan out, said Greg Farris, a former IT manager at Global Marine and now vice president of IT at Oceaneering International Inc., a Houston-based manufacturer of deep-sea and outer-space exploration equipment.

"Because those expected revenues aren't coming in, most of the [drilling] companies are trimming back so they don't bleed cash," Farris said.

Hudson said he plans to launch a part-time IT consulting business specializing in mentoring technology executives — an area in which he has substantial expertise.

In his 18 years at Global, five of Hudson's No. 2 IT managers became CIOs at other firms. "In a way, I feel like Tom Landry and Mike Ditka, whose players and assistant coaches went on to become head coaches themselves," Hudson said.

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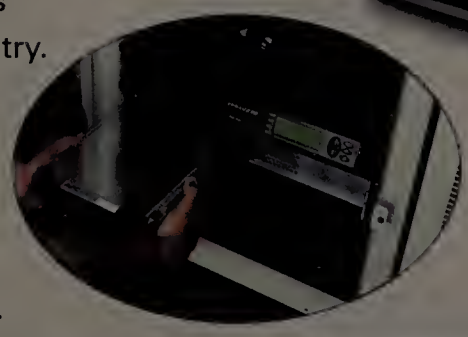

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# SUN IFORCE™ CHANNEL PROVIDER

## AllAdvantage goes to Millennia Vision for IT infrastructure

In the Internet Age, success happens fast. And success, as AllAdvantage.com found out, places unprecedented demand on systems.

Based in Hayward, Calif., AllAdvantage.com is a pioneer in the "infomediary" field. Infomediaries gather precious information from consumers and broker that data to advertisers. AllAdvantage.com signs up members and offers such incentives as rebates, exclusives – even cash in exchange for Web-surfing and referrals. All while maintaining their privacy. Meanwhile, AllAdvantage.com offers advertisers a direct channel over which they can deliver advertising, marketing messages, commerce and digital products.

Now, about that success: Founded in February 1999, AllAdvantage.com signed on more than 5.3 million members in its first 11 months. Its Web site, www.AllAdvantage.com, is consistently ranked in the top 30 of all Web properties on the Internet by PC Data Online.

To compile this startling record, AllAdvantage.com needed a comprehensive database that would compile, aggregate, store and track millions of Internet users and their preferences – meanwhile, the company was starting from scratch and was growing by tens of thousands of members per day. The company also needed a financial accounting system that could manage accounts for millions of members each month. Again, while starting from scratch. To make it happen, it was decided that AllAdvantage.com needed a knowledge management system capable of handling huge amounts of data per hour – scalable to the terabyte range – and hundreds of transactions per second.

To create such a system, the company partnered with Millennia Vision Corp., an e-business consulting firm and Sun Microsystems partner. AllAdvantage.com was impressed by Millennia Vision's (www.mvsn.com) reputation for developing the business processes, technology and infrastructure that surging e-businesses need – and developing it quickly. "Millennia Vision helped us right from the beginning to build this IT infrastructure," says Joe Feliu, AllAdvantage.com's CIO. "We needed immense scalability and flexibility as we grew and our business model changed. They knew that."

Millennia Vision knew it had to start from the ground up with a solid infrastructure. AllAdvantage.com's system includes clustered Sun Enterprise 4500s for critical database work; a set of Enterprise 450s and 250s for quality assurance and development work.

### CONSUMER DATA

To get started, AllAdvantage and Millennia Vision used an Oracle Corp. database as the foundation for a knowledge management tool that tracks and analyzes members' information. The system provides an unparalleled level of personalized service, according to Feliu. "This is current information, it's highly secured

## Sportvision and PVI get Super Bowl to the 'Net

You may not have heard of Sportvision. But if you watch NASCAR Winston Cup racing, NFL football or NCAA Final Four basketball, you've seen the Lawrence, Kansas, company's work.

Sportvision is a leader in animated sports technologies that explain sports to fans. For example, during February's Daytona 500 on CBS, casual viewers saw animated explanations of drafting, pit stops and various handling problems. The company couples innovative, proprietary technologies with in-depth sports expertise to create interactive sports features.

And those features are seen everywhere. On the Internet, Sportvision animation is used by CBS Sportsline, Yahoo! Sports, NFL.com and USAToday.com. On television, you've seen the company's award-winning work during broadcasts of NFL, NBA and NCAA events. In addition to glitzy television broadcast animations, Sportvision appeals to players and coaches with innovative tools such as playbook animation software and instructional videos.

The company was formerly known as Coach's Edge, but was acquired by New York-based Sportvision Inc., a company that develops technology-based enhancements for the Internet, sports television and new media platforms.

In January, with Super Bowl XXXIV approaching, Sportvision needed fast turnaround on an unprecedented project:

The company turned to Peripheral Vision InfoSystems Inc. (www.gopvi.com), a Sun Microsystems iForce Channel Provider. Headquartered in Overland Park, Kansas, PVI offers extensive consulting, integration and project management services to an impressive group of clients that includes Draper Laboratory, Egghead.com and E*Trade. PVI is renowned for assessing clients' existing systems and extracting maximum horsepower from those systems. The company offers consulting and integration for network security, Internet/Intranet/Extranet services, Java programming and the design, development and administration of databases. If the project was a success, Sportvision says, the company knew it would "help us generate greater income and secure additional contracts in all sporting events."

Sportvision says the decision to go with Sun hardware was a no-brainer because of scalability, reliability and availability needs – and also, the company says, "because we believe Sun has the capability to remain ahead of the high-end technology curve, which is critical in the new broadband arena."

Sportvision needed a unique application. The ambitious goal was an interactive experience that would be delivered over the World Wide Web as a simulcast or Webcast in conjunction with the Super Bowl. In order to pull it off, the

# IT LEADER PROGRAM

and it protects the anonymity of members," he says.

Moreover, the database lets advertisers make sure their messages reach their target consumers. Armed with the jointly developed Oracle database, "We can tell a potential advertiser, 'Hey, I have someone who's 38 and who likes to travel, likes to golf and who likes to read murder mysteries.' Because AllAdvantage.com tracks actual surfing habits, consumers are essentially paid to do what they'd be doing anyway," Feliu points out.

The advertisers are happy because they get more accurate data from AllAdvantage.com than from other businesses that ask consumers to fill out forms. "Asking someone about themselves and watching what they do are very, very different," Feliu says. "Advertisers understand that."

## THE ASP DECISION

In order to concentrate on growing the business, and to focus its IT resources on customer- and advertiser-facing projects, AllAdvantage.com decided to outsource its enterprise resource planning (ERP) and customer relationship management (CRM) applications. "That was very important for our ability to scale quickly," Feliu says. "What you really want from an ASP is to be freed up to focus on your core competencies – and I'm sorry, but internal projects like managing sales support systems are not core competencies for us."

Here again, the company turned to Millennia Vision, which pulled off an amazing feat: the company implemented Oracle's e.Business Suite of applications in a mere seven and a half weeks. Applications included financial software, accounts payable, purchasing, fixed assets and accounts receivable. That was phase one. In the next phase, AllAdvantage.com wanted to add several key Oracle CRM tools. Millennia Vision implemented these applications in eight weeks.

Feliu is more than pleased with Millennia Vision's rapid-fire work. That work has allowed the infomediary to continue its amazing growth. In recent months, AllAdvantage.com served and tracked over 8 billion advertising impressions every month, or an average of almost 300 million impressions per day. Membership has topped the 6.5 million-mark. Feliu is quick to credit the infrastructure jointly developed with Millennia Vision as a major reason.

company would need to merge raw statistics with cutting-edge visual rendering tools, thus fundamentally changing the way fans experienced what has long been the biggest sporting event in the U.S. Sportvision sought to develop a companion to CBS' TV broadcast that would be interactive, fun, educational, seamless and instantaneous for all Net surfers, whether they enjoyed broadband Internet access or made do with dial-up access. This meant that PVI had to make the applications extremely scalable, fault-tolerant and highly available.

After careful thought, PVI decided Sportvision required a combination of applications and strategies – both an electronic-business solution and a custom-built solution. This combination would be unique. Moreover, the amazingly tight deadline (only three weeks were allotted) dictated that PVI modify its very delivery methodology and technology. PVI and its president and CEO, Scot Kane, modified the existing methodology and delivery mechanism to better support real-time delivery of the applications. Another critical goal was to provide massive scalability for both narrow and broadband access. This was important because the applications were incredibly rich – users had hundreds of selection options – and provided a unique perspective on the Super Bowl.

PVI took charge of the project, coordinating the several vendors and customers who worked together to modify code for the ambitious, hard-deadline undertaking. In the end, the project was completed on time and showcased Sportvision technology for millions worldwide.

Sportvision says PVI was the "natural choice" for the project. "We needed to create the most highly available and redundant application serving environment possible," according to the company. "And we wanted a system that would provide the greatest scalability in terms of unknown quantity of users. Sun and PVI gave us what we wanted and more."

### The Award Program

The Computerworld Custom Publishing and Sun Microsystems sponsored contest recognizes innovative Sun implementations around the world. End users were invited to submit their Sun "channel provider-developed" implementations. The winners were chosen by IDC based on the uniqueness of the solution and its value to the host organization. The winners' stories appear in Computerworld during July and August and online at: *www.Computerworld.com*

COMPUTERWORLD
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# The Value of Certification

Situated between the manufacturer and the end-user customer, channel partners are continually evolving their business models to ensure that they stay competitive in the fast-paced IT industry. To accomplish this, channel partners need to have a solid understanding of the technology on which they are building the solution, and customers need to know that the partner has the expertise. These solutions are often mission-critical and must be implemented in Internet time.

Supplier certification programs are designed to provide the partner the knowledge required to effectively work with the products. Successful completion of a certification program often allows the channel partner a higher level relationship with the supplier, because some suppliers allow only those that successfully completed certification access to the equipment. Certified partners are also recognized by the supplier as those that have made a commitment to the vendor. They may be the only partners allowed additional benefits such as leads, access to engineering or resources such as demo equipment, and inclusion or access to marketing programs.

While certification is costly to the partner, the benefits can outweigh the costs because it provides the customer a seal of approval. The supplier should have confidence in the partner, and the partner should make a clear commitment to the vendor.

With the introduction of specialized certification programs, channel partners can provide more in-depth training. This translates to added revenue as the solutions tend to be more complex. With the right training, the channel partner can increase their time to delivery and their value-add services.

But the benefits extend beyond just the program and commitment levels. A recent IDC study of end-user channel preferences shows the primary reason for dissatisfaction with their channel was lack of service and support. Through vehicles such as certification, the channel partner is equipped to provide the level of service and support required, allowing a higher customer retention and providing a win-win scenario for the channel, the supplier and the customer.

IDC
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# Maimonides CIO: Health Care Faces Y2k-Scale Challenges

*Says proposed federal regulations have hospitals scrambling to protect themselves*

SOMETIME THIS YEAR, the federal government is expected to unveil its long-awaited regulations regarding the electronic transmission of health information. And the stakes are high.

Under the Health Insurance Portability and Accountability Act of 1996 (HIPAA), which has yet to be implemented, officials of health care organizations could face fines and possible jail time if they don't adequately safeguard the privacy and security of patient information that is transmitted electronically.

As a result, health care organizations are upgrading their technologies to prepare for the initiative. **Ann Sullivan**, CIO at Maimonides Medical Center in Brooklyn, N.Y., recently spoke with *Computerworld*'s Julekha Dash about how Maimonides is preparing for HIPAA as well as other technology issues facing health care.

**Q: How do you think HIPAA will affect health care?**

**A:** I'm supportive of the need to protect patient confidentiality and coming up with national standards. I think that the [proposed] regulations went much further than that.

Now my billing vendor is going to have to be able to upgrade their software to enable it to be confidential.

The networks have to be upgraded to do it. The clearinghouse needs to be updated to do it, and the receiving person has to be able to do it. . . . It's as complex as Y2k.

**Q: How do you feel about the health care industry's push toward electronic health services?**

**A:** The potential is so wonderful. No. 1, a patient who goes onto a consumer-oriented Web page such as WebMD can book an appointment at a particular hospital. Physicians can get their [Continuing Medical Education] credits. . . . They can do drug ordering now on PalmPilots.

From a business-to-business perspective, we're electronically transmitting all of our purchase orders with our premier contracts and getting discounts as a result of sending them electronically.

**Q: What kind of technology?**

**A:** We're a partner with WebMD, which we [started] a year ago. They were bringing together [other online health vendors] to enable doctors to help communications with managed care companies.

**Q: Some people are skeptical of online health vendors because they think some of these companies won't be around in a few years.**

**A:** Well, you know, some of the known companies might not be around in a year or two. . . . I hate to tell you how many went out of business when we were working with them. That's before the e-world, so I don't want to blame the e-world.

**Q: Some health organizations plan to wait for their existing vendors to develop new technologies rather than take chances on new online health vendors. Is that wise?**

**ANN SULLIVAN, Maimonides CIO, says she backs the creation of patient confidentiality standards**

**A:** This is a very wonderful point. [A major health care vendor] is looking at migrating their customer base in New York for [a billing] product. We talked to the [vendor] and we said, "Look, our customers want to look at a [graphical user interface] screen; they want to be able to change things."

They said they're going to redesign the product in seven years. Seven years! So that now has forced us to change our strategy. We've now decided we'll most likely change our front-end registration package and interface it to the back-end billing system.

**Q: What are some of your staffing challenges? How do you keep employees?**

**A:** You try to keep technology advanced and interesting because technology people like to be doing new state-of-the-art things. Just to keep their interest alone is a full-time job. And [we] send people to a lot of training. . . . We've actually been able to help recruit for other departments. Some of our new residents who came in this year came to Maimonides because they heard about some of our computerized patient records. ◗

# Survey: Retail Fraud More Prevalent for Online Vendors

*So Web shops are charged higher credit-card fees*

BY LINDA ROSENCRANCE

Online retailers get hit by fraudulent credit-card purchases much more often than their brick-and-mortar counterparts do, according to a Gartner Group Inc. study released last week.

But some observers said the problem isn't as dire as the survey indicates, even though all online ventures must pay higher credit-card fees because of that fraud.

Gartner said its survey of 160 companies — half of which use the Internet to sell products — found that the amount of credit-card fraud is 12 times higher online than it is in the physical retail world.

Online retailers pay higher transaction fees to credit-card issuers — 2.5% of a transaction plus 30 cents, rather than 1.5% plus 30 cents — because of the increased level of fraud, according to Stamford, Conn.-based Gartner.

Companies selling via the Internet must absorb the costs of disputes with customers and of any fraudulent transactions they suffer, said Avivah Litan, a Gartner analyst who worked on the survey.

That's because online transactions lack a physical receipt that has been signed by the customer and can later be verified, she said.

Selling online "is a riskier [transaction]," Litan said. "Online merchants eat the cost of all chargeback disputes. But in the real world, if there is a signed receipt, the merchant is off the hook."

Alan Alper, an analyst at Gomez Advisors Inc. in Lincoln, Mass., agreed that it's easier to perpetrate fraud online than in stores. What's needed to prevent it is an online credit-card transaction standard such as the Secure Electronic Transaction specification proposed by MasterCard International Inc. and Visa International in 1996, Alper said.

SOURCE: GARTNER GROUP INC., STAMFORD, CONN.

But that's "dead in the water" at this point, he added. Merchants, not banks or credit-card issuers, pay for online credit-card fraud and don't want to invest in the infrastructure necessary to institute such a standard, he said.

## Regular and Substantial Problem

But according to a survey of 736 companies that was released last month by ActivMedia Research LLC, only 3% of all Web businesses experience fraud as a "regular and substantial" problem.

ActivMedia, an e-commerce research firm in Peterborough, N.H., said Web sites most susceptible to fraud deal with higher-risk online populations and sell merchandise that can easily be resold at a high price — products like computers, home electronics equipment and jewelry, for example.

Lands' End Inc. in Dodgeville, Wis., is one retailer that said it hasn't experienced an increase in fraudulent activity since it expanded beyond its traditional catalog business and began selling online.

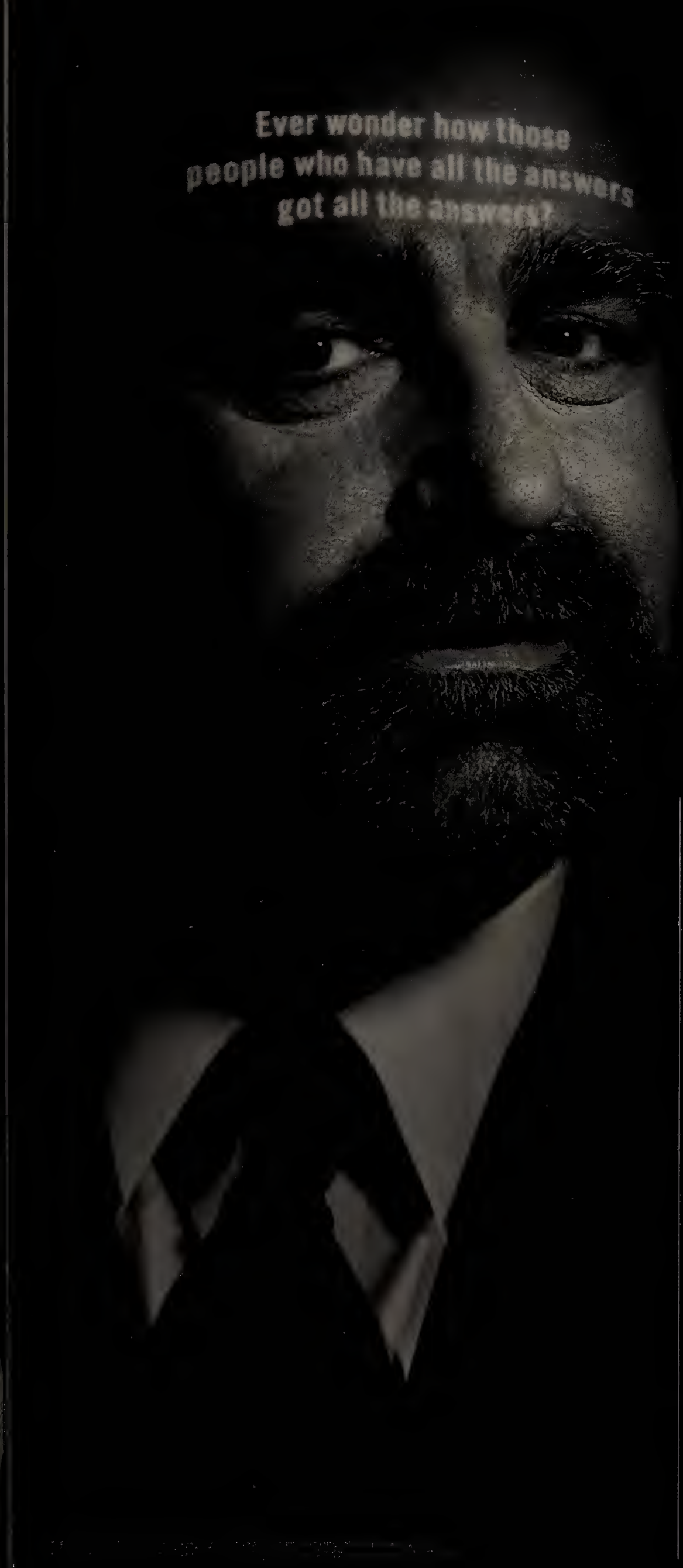
Andrea Stephenson, a Lands' End spokeswoman, said the company hasn't had problems "with our customer base" and sees no difference in the fraud rates between its online site and the catalog operations.

Andrew Bartels, an analyst at Giga Information Group Inc. in Cambridge, Mass., said some of the larger and more established online retailers, as well as those with physical stores, have installed software to detect Internet fraud.

"But it's the start-up dot-coms that are more focused on getting their business going than on fraud protection," Bartels said.

Credit-card issuers Citibank and Capital One Financial Corp. didn't return phone calls seeking comment on Gartner's claims.

Litan said online merchants should do what they can to decrease fraudulent transactions by investing in software designed to detect Internet fraud, such as that of HNC Software Inc. in San Diego. ◗

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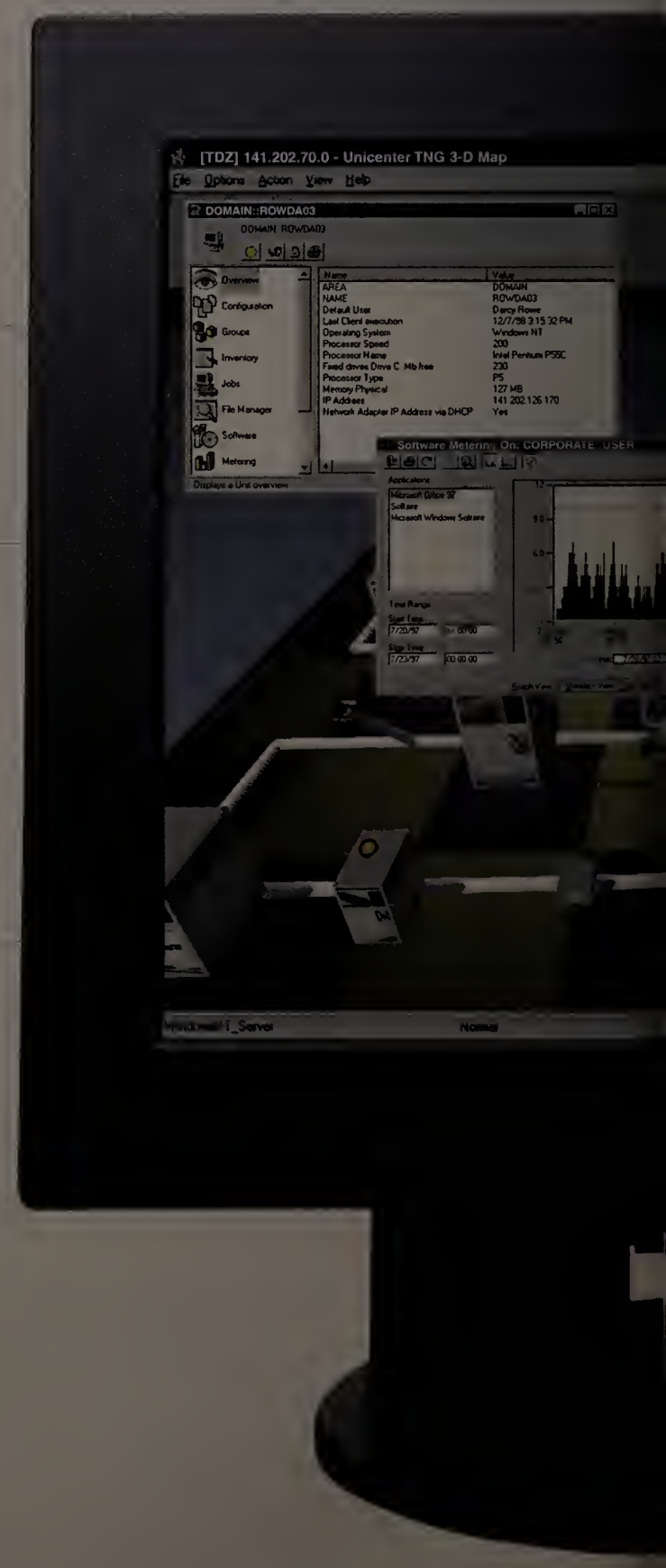


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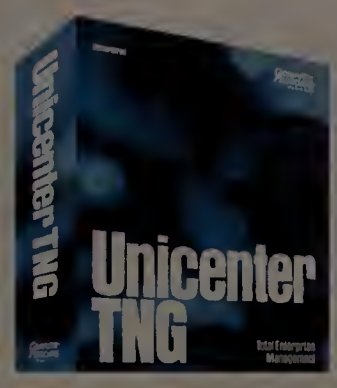


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# Deals Aim to Advance Wireless Web, E-Mail

*Carriers pin hopes on maturing market*

BY BOB BREWIN

LAST WEEK saw a flurry of activity that demonstrated how eager wireless carriers are to make wireless access to the Internet a core part of their business.

America Online Inc. in Dulles, Va., signed a deal last week that could extend the reach of its AOL Anywhere to all 12.5 million wireless subscribers of AT&T Wireless Group's services. The action follows an agreement AOL signed last month to make its services available to as many as 7 million Sprint PCS Group wireless users nationwide.

In a related development last week, Kansas City, Mo.-based Sprint PCS signed a deal with Phone.com Inc. in Redwood City, Calif., that enables Sprint PCS to provide e-mail access to all of its subscribers. Sprint said the deal moves it closer to acting as a full-service Internet service provider for its mobile subscribers.

In another wireless Web development, Verizon Wireless in Bedminster, N.J., the country's largest wireless carrier, with more than 25 million subscribers, last week launched its Mobile Web service.

Verizon said the new service provides wireless access to services on 32 branded Web sites, including stock trading through Boston-based Fidelity Investments, airline flight schedules and comparison-shopping services.

## Positioning Tussle

Tim Scannell, a Quincy, Mass.-based wireless analyst, characterized last week's flurry of deals as a jockeying for position by carriers and content providers for what they perceive to be a booming market for mobile information and data. However, Scannell said, wireless technology hasn't yet matured to the stage that would make the wireless Web a true rival to wired Web sites.

E-mail will serve as the driver for the adoption of wireless Internet use, just as it did in the wired market, said Kendra Vandermeulen, senior vice president for new products and strategy at Redmond, Wash.-based AT&T Wireless. AT&T Wireless will start offering AOL access to mobile subscribers of its Digital PocketNet service this fall.

Alan Reiter, an analyst at Wireless Internet & Mobile Computing in Chevy Chase, Md., said he views AOL as a "natural fit" with wireless access because so many of AOL's subscribers have embraced e-mail and messaging, two formats that dovetail well with today's small-screen and low-bandwidth mobile phones. "This [deal] makes a lot of sense" for the companies and their subscribers, Reiter, said.

Sprint PCS said the deal it signed with Phone.com will provide its wireless subscribers with another alternative for accessing their e-mail. Sprint PCS subscribers can already check e-mail over their wireless Web phones on either Yahoo or AOL, a spokeswoman said. The deal with Phone.com will allow Sprint PCS to offer its wireless Web users the ability to check their e-mail directly on the SprintPCS.com site, with the wireless e-mail configurable from the company's wired Web page, she said. ▶

### Going Wireless

*Recent content/application deals:*

- **America Online** signed a deal to offer its service to potentially 12.5 million AT&T Wireless subscribers.
- **Sprint PCS,** which signed a pact with AOL last month, took steps toward becoming an ISP with an offer of e-mail service to its 7 million subscribers.
- **Verizon Wireless** rolled out Mobile Web service to its 25 million users, with access to 32 branded Web sites.

# Citigroup, AOL Team to Ease Transactions

*No need for credit cards to buy online*

BY LINDA ROSENCRANCE

Citigroup Inc. and America Online Inc. said last week that they are joining forces to make it easier for consumers and businesses to settle online financial transactions.

Beginning this fall, AOL users will be able to purchase goods, buy show tickets and transfer funds over the Internet without having to use credit cards, said David Theis, a spokesman for Dulles, Va.-based AOL.

"The money will come directly out of their checking accounts," Theis said. "This will change online payment."

## Account Transfers to Come

In addition, the two companies said their services — available to users of AOL services, including CompuServe, Netscape, Netcenter, AOLTV and AOL Instant Messenger — will ultimately allow consumers to transfer money between accounts.

As part of the deal, New York-based Citigroup will provide its financial products and services across AOL brands, and Citigroup will prominently promote AOL's products and services to its customers.

The companies didn't disclose the financial terms of the alliance.

A survey released last week by InsightExpress LLC, a research group in Greenwich, Conn., found that consumers are three times more likely to use an online bill-payment service from a bank than from a dot-com company.

"We are the predominant payment-processing institution in the physical world, and what we want to do is take that expertise and transfer it to the electronic world," said Citigroup spokeswoman Nina Das. "And we're doing that with the No. I player in the interactive services market. But we are not limiting it to AOL. We intend it to be an open, standards-based infrastructure that other people can participate in."

For example, Das said, the money-transfer infrastructure will be embedded in *www.myciti.com*, a financial services site that Citigroup launched last week. On the site, customers can consolidate their banking, investment and other information from their online accounts, allowing them to better manage those accounts.

### Electronic Funds

*The Citigroup/AOL alliance will let consumers complete online financial transactions without using a credit card.*

**Consumers will be able to use money in their checking accounts to:**

- Send money to other people, including children away at college
- Purchase goods online
- Buy tickets to a show

Brook Newcomb, an analyst at Forrester Research Inc. in Cambridge, Mass., said the alliance is important because there is currently no across-the-board standard for conducting financial transactions online.

"The offerings now are only one-by-one solutions — they are not integrated," Newcomb said. "Citigroup is going to develop a suite of services so no matter how, or who, a consumer wants to pay, [he will be able to do it]."

Das said that although Citigroup's goal is to make the system an open standards-based infrastructure, it's too early to comment on licensing it to other institutions. ▶

# Former IBM Exec to Run IT for FBI

BY JENNIFER DISABATINO

The FBI last week named former IBM executive Bob Dies to head up its Information Resources division, which oversees the development and maintenance of the law enforcement agency's computer systems and communications networks.

Dies, 54, was given the title of assistant director at the FBI.

BOB DIES, former IBM executive and new FBI assistant director of IT

Agency Director Louis Freeh said in a statement that Dies "is the right man at the right time for perhaps the toughest job in the FBI today."

Freeh said the Federal Bureau of Investigation needs to "modernize our own information systems at the same time we are responding to crimes committed on and with rapidly developing technologies."

## Electronic Records a Priority

The top priority Dies faces is the design and deployment of a project called eFBI that is aimed at upgrading the FBI's electronic record-keeping, information-sharing and data-analysis capabilities.

The project would provide technology that FBI officials said is needed for activities like counterterrorism, counterespionage and investigations into cybercrime and child pornography.

The eFBI project remains in the design and congressional approval stage.

Dies spent 30 years at IBM before leaving the computer maker last year.

He became a corporate vice president in 1990 and held successive positions as general manager of IBM's AS/400, network computer and network/PC divisions. He was also executive vice president of industries and services at the company. ▶

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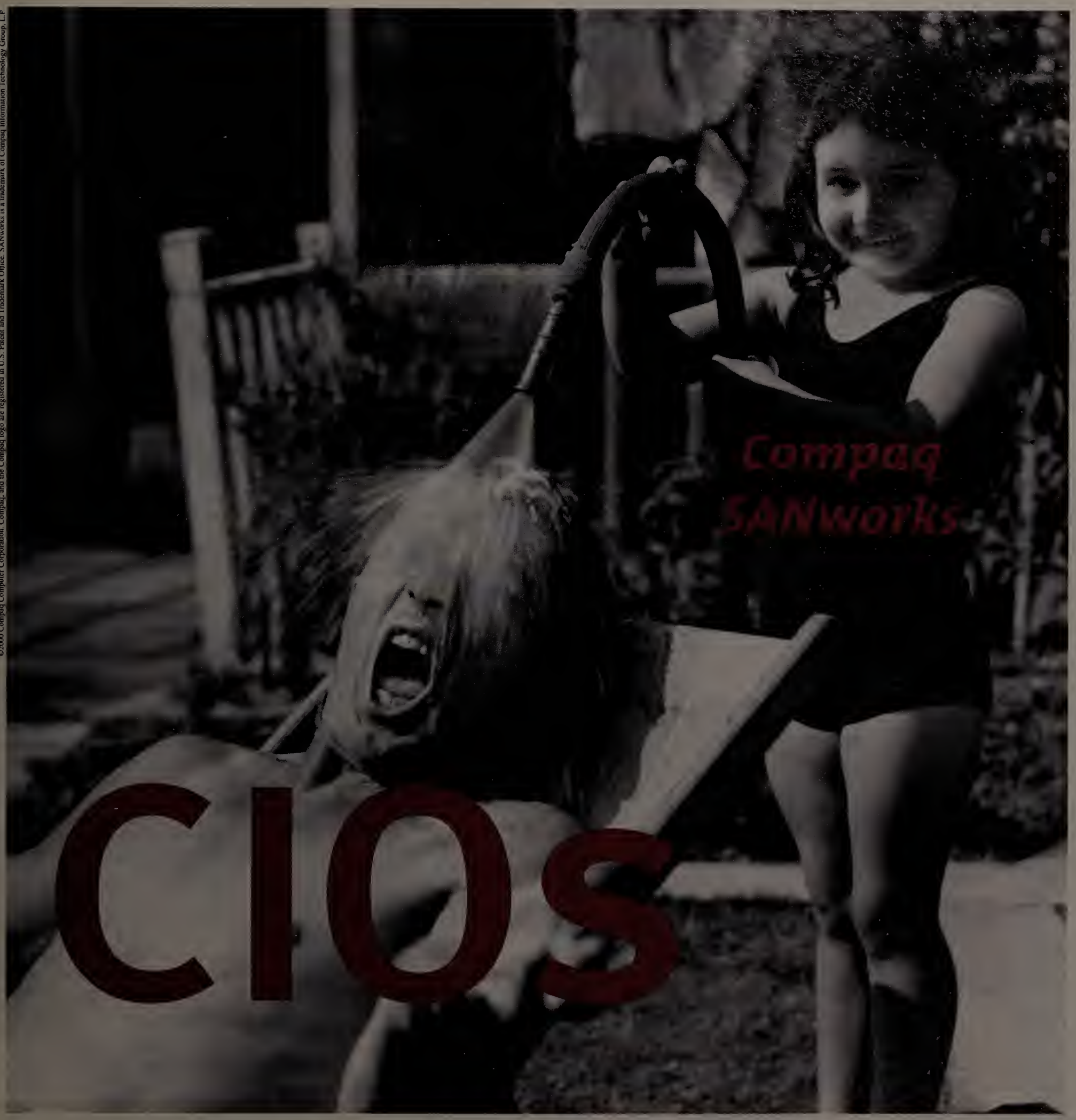


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## What is Windows 2000 Advantage?

Windows 2000 Advantage is the partnership among Microsoft, Compaq and Computerworld Enterprise Business Solutions to inform IT leaders about Windows NT and Windows 2000 technology by providing timely, useful information — in print and online — for planning and deploying Windows NT and Windows 2000 with Compaq services and solutions.

## Online This Week

### Users Cite Windows 2000 Challenges, Pitfalls and Opportunities

When three Compaq users sit down to discuss Windows 2000, what do they say? They are turned on by the possibilities, but daunted by the work involved. Everybody agrees planning is a must. They also agree that migration is a major project with widespread ramifications for their businesses. Read this customer roundtable if you want to know what users really think about Windows 2000.

### The Incredible Adventures of Super Windows 2000 Administrator Man!

Faster than a speeding packet, more powerful than a cluster of mainframes, Super Windows 2000 Administrator Man is here to save the day with his roaming Compaq Active Directory Domain Controller.

### Microsoft's XML-powered BizTalk Binds Legacy Apps Via Internet Standards and Technology

If your IT shop maintains multiple computing systems that contain overlapped or duplicate information, help may be on its way in the form of a new initiative from Microsoft called BizTalk. The effort is trying to create a coherent way for enterprises to manipulate a wide variety of data sources and serve as the glue that binds together legacy applications using some existing Internet standards and technologies.

**Quickpoll** **Will you take advantage of the portability features offered in Windows 2000?**

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www.Windows2000Advantage.com.

Check out the current results:
*Base: 87* ▶

Microsoft

Computerworld

# Windows 2000

# Digex Implementing Compaq, Windows 2000 Architecture

*By Elisabeth Putnam*

As a Web hosting company, Digex Inc. confronts the same basic performance, reliability and management concerns as ordinary e-businesses, but on a larger scale.

The company manages and operates about 3,000 Web sites. "We have to manage, upgrade and maintain tens of thousands of servers around the clock," says Bobby Patrick, vice president of strategy for the Beltsville, Md.-based firm.

**AT A GLANCE**

**Digex Inc.**

**1999 revenue:**
• $60M

**Q1 2000 revenue:**
• $28M

**Projected 2000 revenue:**
• $140M to $160M

The company has spent the last few years in a partnership with Compaq and Microsoft, working to develop a Web hosting platform based on Compaq ProLiant and Windows NT 4.0. In December, it migrated with its customers to Windows 2000 Advanced Server.

### Staying in Control

Digex is leveraging this architecture to meet the needs of its e-business, e-marketing and ASP customers.

For Digex, the only way to ensure 24/7 reliability and quality of service was to come up with a standardized Web server architecture.

While new tools and components are being added all the time, the basic hardware and software platform is pretty much cast in stone, Patrick says.

For example, Compaq was one of the first vendors to introduce a "screwless" box that can be opened quickly, without special tools, Patrick says. "This is key to us, since we need to service boxes quickly."

Another key element of Digex's strategy is maintaining control over who gets to access Web servers. This has not been easy, because its customers need high-level of administrative access to the Web servers to deploy their business applications.

"It's a major challenge, allowing customers onto our boxes" but at the same time limiting the possibility of damage to the Web platform through administrative error, says Richard R. Wolfe, Digex's senior research and development engineer.

Fortunately, it got a lot easier when Digex moved its customers to Windows 2000 and implemented Active Directory, Patrick says.

Active Directory enables administrators to control access rights on a much more granular level. "We can only let customers change the things they need to change," Wolfe says.

### Staying in Touch

Moving to Windows 2000 has enabled Digex to safeguard its systems against the dangers of "shared components." Some e-businesses like to put application components in a shared space where developers can access them. With "Side by Side sharing," which Microsoft introduced with Windows 2000 and Windows 98 Second Edition, multiple versions of the same COM or Win32 component can run simultaneously in memory. ▶

For the full text, visit www.Windows2000Advantage.com.

ADVANTAGE

The Web Magazine for IT Leaders Implementing Windows NT and Windows 2000 with Compaq Services and Solutions

▶ Feature

# Dot-com Users Cashing in on Windows 2000

*By Elisabeth Putnam*

David Knight, CTO for Click2send.com, thought his company would build its Web server infrastructure on Sun Microsystems Solaris and Oracle's Oracle 8. Instead, the Internet file delivery services provider went with a multi-tier, load-balanced Web platform based on Microsoft's Windows NT, and more recently, Windows 2000.

Why the switch? Knight realized that Microsoft's Web server architecture was superior in most of the areas that mattered to his company: price/performance, reliability, ease of administration and ease of development.

Click2Send is far from alone. A growing number of dot-coms are adopting Windows 2000 because of its cost-effective reliability and easy scalability, says Joseph Clabby, vice president of platforms and services at Aberdeen Group.

## It Can't Go Down

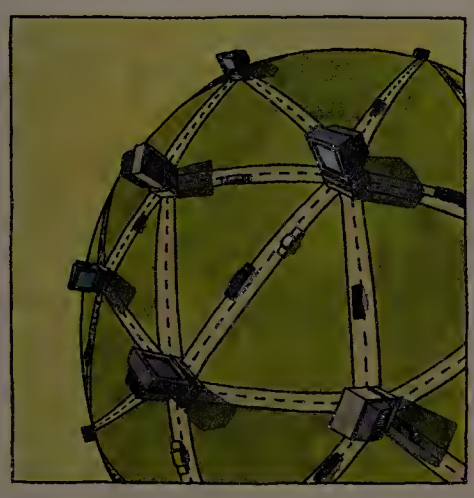
For dot-com's, 24/7 reliability is absolutely crucial.

That's why these organizations are turning to Windows 2000 with its built-in tools for managing distributed components across a load balanced, multi-server architecture. "We can fail over from a downed server to the next good one in a very short amount of time with no impact to our customers," says Scott Green, director of merchandising in IT at Drugstore.com.

## More Bang for the Buck

At least as important for budget-conscious dot-coms is power which is a lot more cost-effective on a standard Windows 2000/Intel platform than on Unix machines.

"We can incrementally increase capacity to serve more users just by adding another $10,000 WinTel box," Knight notes. With a Unix platform like Sun's Solaris, in contrast, his company would end up purchasing a big,



$250,000 box with far more capacity than immediately needed, he adds.

## Built-in Administration and Management

Windows 2000 offers customers a more automated way of managing, maintaining and upgrading their distributed server architectures with its built-in Terminal Services and Active Directory.

"Active Directory is key to our ability to scale" in response to customer demand, says Bobby Patrick, vice president of strategy, Digex Inc. "It's hard to manage Windows NT domains across thousands of servers; but with Active Directory, you can scale to tens of thousands of servers and still keep control of access rights, permissions and key information about each server," Patrick adds.

## Security on All Levels

Also critical to dot-coms are security mechanisms, such as Kerberos 5, that Microsoft has integrated into Windows 2000. The result is a comprehensive, multi-layered security model, which includes Public Key Infrastructure (PKI) and Lightweight Directory Access Protocol (LDAP) access to database and directory resources.

## The Bottom Line

The fact is, it's an overall approach to Web infrastructure that is causing more and more dot-coms to jump on the Microsoft and Compaq bandwagon.

"We made a decision to use Microsoft technology because we believed it would provide the best ROI on our technology investment, measured in terms of cost per transaction, incremental scalability and availability of development and operations resources," says Gary King, CTO, Barnesandnoble.com "We believe our original assumptions have proven correct." ◗

For the full text, visit www.Windows2000Advantage.com.

## Point of View

### Compaq, Windows 2000 Driving Supply-Chain Applications

*By Lori Robak*

IT managers are looking for robust solutions for supply-chain applications.

Fortunately, Compaq is using the power of Windows 2000 to provide cost-effective, enterprise-wide supply-chain solutions.

In the past, the term "supply chain" referred to corporate operations.

Now, thanks to the Internet, this chain has been expanded to include customers, vendors, suppliers and distributors.

While mainframes had the power for supply-chain applications, they suffered from a lack of interoperability.

Distributed computing solved that problem, but issues with interoperability, management and enterprise applications inflated the total cost of ownership.

ProLiant 8-way server family combined with Windows 2000 can deliver the power of a mainframe with better usability and higher cost-effectiveness.

A strong supply-chain application depends on a successful storage strategy. Therefore, Compaq's SAN strategy relies on the Enterprise Network Storage Architecture. This architecture allows servers to obtain storage through a utility gateway, resulting in distributed pools of storage that are readily available.

In addition, Compaq's StorageWorks family offers centralized management capabilities.

Recently Compaq introduced SANworks to help simplify, centralize and automate the management of direct-attached storage, network-attached storage (NAS) and SANs.

Compaq is able to provide solutions that enable companies running Windows 2000 to enhance their supply-chain applications because it has a wealth of experience.

Barnes&Noble.com, Amazon.com and Pennzoil Products Co. are just some of the companies for which Compaq has built and implemented Windows NT-based value chains.

Combining the robustness of Windows 2000 with the features of Compaq's servers, open storage and Unix interoperability, IT managers can really "power up" their supply-chain applications.

For the full text, visit www.Windows2000Advantage.com.

For more inside, hands-on Windows 2000 information, go to www.Windows2000Advantage.com

GO

# Bell to Toll for Dutch ERP Supplier Baan?

BY KATHLEEN OHLSON

Following last week's announcement by Baan Co. of disastrous restated financial results, analysts have all but started to write the ailing Dutch enterprise resource planning (ERP) software supplier's obituary.

Baan's misfortunes continued last week when its restated financial results for last year reduced sales from $635 million to $619 million, compared with $736 million in sales for 1998. The restated revenue widened last year's loss to $309.6 million.

Baan officials failed to respond to repeated requests for comment, so it's unclear why the Barneveld, Netherlands-based company was compelled to restate its financial results.

The company said in a statement last week that it expects to post a loss of $85 million to $95 million for the second quarter, which ended June 30. Sales will be in the $70 million to $80 million range, down from $173 million for the same period a year ago, officials said.

"The company has been critically ill for some time," said Joshua Greenbaum, an analyst at Enterprise Applications Consulting in Berkeley, Calif. "The right people in the right place making the right decisions would have saved this company."

## Lack of Leadership

Analysts attributed Baan's downfall to leadership problems, including mismanagement by founding brothers Jan and Paul Baan. Executives overstated earning projections, muddled through seven consecutive quarters of losses and failed to solve serious integration problems following the acquisition of several financial software vendors, including Coda Group PLC and Aurum Software Inc., analysts said.

There was initially some synergy, but these companies were never integrated technologically and culturally with Baan, said Ed Markowitz, an analyst at ChainNet Research AG in Cincinnati.

Analysts said Baan's only hope for survival is pinned on London-based electronics and engineering firm Invensys PLC, which in May offered to buy the company for $709 million. Invensys set a stipulation that 95% of Baan's shareholders must approve the deal and extended its offer until July 25 after falling far short of that target.

The acquisition offer passed a major hurdle last week when an additional group of shareholders approved the buyout, an Invensys spokesman said.

Mike May, CIO at Teknion Corp. in Toronto, said customer support isn't a concern — provided Invensys buys Baan. The office furniture maker uses Baan's Demand Planner and Execution software. "Invensys has good management with deep pockets" and will refocus on the existing customer base, May said.

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Tech Data

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# Former SAP America CEO Takes New Post

*McKay returns to finance position as No. 2 executive for Mercator Software*

BY LINDA ROSENCRANCE

KEVIN McKAY, the top executive at SAP AG's U.S. subsidiary until his resignation three months ago, last week surfaced as the No. 2 executive at Mercator Software Inc., one of the many vendors jockeying for position in the market for application integration tools.

Mercator, a Wilton, Conn.-based company that had sales of $98.6 million last year, announced that McKay is joining as executive vice president and chief financial officer. McKay, who chose to give up the CEO spot at SAP America Inc. in April rather than accept an offer to become chief financial officer of SAP as a whole, is scheduled to start full-time at Mercator next month.

McKay, 47, headed the finance department at SAP America in Newtowne Square, Pa., before becoming its CEO. He said he left SAP America on good terms and noted that one of the reasons he left was that he enjoys building smaller enterprises into larger ones.

"I also wanted to join a company [whose direction] I could influence," McKay said.

Jim Shepherd, an analyst at AMR Research Inc. in Boston, cited McKay's background and personality as factors that prompted the move.

"By nature, he's a CFO," Shepherd said. "And he'll never be a charismatic leader. He's tough and very smart. Although he did a very good job at SAP America, the sales force didn't like him very much because he's tough. He's not a guy you'd choose to run a sales organization."

McKAY: Wants an opportunity to "influence"

## Challenges Ahead

Dan Sholler, an analyst at Meta Group Inc. in Stamford, Conn., said he was unaware of the details of McKay's resignation from SAP America. But he noted that McKay's joining Mercator gives McKay the chance to work for a fast-growing company in the enterprise application integration business, which Sholler described as a "fairly hot" market for vendors.

However, McKay will face immediate challenges. The announcement of his hiring followed a warning issued last week that Mercator's second-quarter earnings will likely be half what Wall Street analysts were expecting, despite revenue that should be slightly more than the $35 million outside estimates had predicted.

Mercator attributed the earnings shortfall to higher-than-expected sales and marketing expenses during the second quarter. Despite the warning, Connie Galley, the firm's president and CEO, said in a statement that Mercator officials remain "confident in the strength of our business and see no change in our business fundamentals." ◗

# Microsoft Beats Earnings Estimates, But Revenue Flat

BY DOMINIQUE DECKMYN

Microsoft Corp.'s fiscal 2000 fourth-quarter results came in close to what analysts had been expecting, reassuring the market after a negative surprise in the third quarter. The company reported net income of $2.41 billion on revenue of $5.8 billion for the quarter ended June 30.

Microsoft's earnings per share for the quarter were 44 cents, narrowly beating the 42-cents-per-share average estimate of analysts polled by Boston-based First Call/Thomson Financial.

"After a quarter with a negative surprise, a quarter with no surprises is a good thing," said Chris Mortenson, an analyst at Deutsche Banc Alex. Brown Inc. in New York.

Revenue growth was flat compared with the same quarter last year, when the company saw revenue of $5.76 billion and net income of $2.2 billion. Microsoft had warned about slowing growth when it announced the results of its previous quarter. Executives said last year's results were affected by the successful launch of Office 2000 and other factors.

For the fiscal year ended June 30, Microsoft reported net income of $9.42 billion and revenue of $22.96 billion, up 16% from revenue of $19.75 billion in fiscal 1999. Though lower than Microsoft's historical growth figures, 16% is an impressive number, given Microsoft's size, said Art Russell, an analyst at Edward D. Jones & Co. in St. Louis. "It amounts to adding several Yahoos in a year," he said.

Microsoft chief financial officer John Connors said weak sales of business PCs had a negative impact on revenue for the fourth quarter. But in the current quarter, Microsoft anticipates that business PC sales will improve and that the launch of Windows 2000 Service Pack 1 (expected later this summer) will "further accelerate Windows 2000 adoption," said Connors.

However, Connors said, last year's first quarter was aided by strong pre-Y2k buying. He told analysts to expect only modest 5% revenue growth for this quarter compared with last year's first quarter. ◗

## SNAPSHOT

### Quarterly Earnings Reports

| COMPANY | REVENUE Q2 2000 | REVENUE CHANGE PERCENTAGE* | NET INCOME Q2 2000 | NET INCOME CHANGE PERCENTAGE* |
|---|---|---|---|---|
| Apple Computer Inc. | $1.82 billion | 17% | $163 million | 43% |
| Commerce One Inc. | $62.7 million | 1,329% | - $16.2 million | - 267% |
| EMC Corp. | $2.15 billion | 30% | $429 million | 50% |
| Exabyte Corp. | $51.31 million | 6% | -$9.64 million | - 42% |
| FileNet Corp. | $95.1 million | 10% | $7 million | 79% |
| IBM | $21.7 billion | 20% | $1.9 billion | -1% |
| Intel Corp. | $8.3 billion | 23% | $3.5 billion | 98% |
| Nextel Communications Inc. | $1.26 billion | 59% | $290 million | 166 % |
| SAP AG | $1.4 billion | 19% | $14.9 million | -18% |
| Sybase Inc. | $234 million | 11% | $13.4 million | - 6% |
| Unisys Corp. | $1.6 billion | 16% | $56.3 million | - 54% |
| Veritas Software Corp. | $275.4 million | 77% | - $172.3 million | - 1,105% |

* Compared with Q2 1999

SOURCE: THE COMPANIES' EARNINGS STATEMENTS

## BRIEFS

### Cisco Takes Stake in Liberate

Cisco Systems Inc. in San Jose last week invested $100 million in San Carlos, Calif.-based Liberate Technologies, a developer of software for the convergence of Internet content and television broadcasts. As part of the agreement, Liberate will participate in Cisco's New World Ecosystem program, a group of technology companies that assist service providers. Cisco will integrate its broadband technology with the Liberate TV Navigator client and Liberate Connect server software to enhance broadband connections for interactive television.

### Drkoop.com Faces Further Losses

Drkoop.com Inc., another high-profile Internet venture struggling for survival, continues to suffer, with more losses, shareholder lawsuits and the resignation of two top executives. In a filing submitted to the Securities and Exchange Commission (SEC) last week, the Austin, Texas-based online medical information company said it expects to report another loss for the second quarter on revenue of just $2.5 million to $3 million. Drkoop.com also announced that its chief operating officer and chief financial officer both "voluntarily elected to resign." The report to the SEC followed the filing of a pair of class-action lawsuits against Drkoop.com by law firms in Washington and New York on behalf of the company's shareholders.

### Visa, Sun, Cisco Team For 'U-Commerce'

Visa U.S.A. Inc. in Foster City, Calif., in partnership with Sun Microsystems Inc. and Cisco Systems, last week unveiled Visa DirectExchange, a payment-processing system. Visa claimed that the system will be the largest private financial payment network with access to Internet technologies. The network will facilitate universal commerce, or u-commerce, according to chief technology officer Scott Thompson, which will enable the company to handle a whole range of payments besides credit-card processing.

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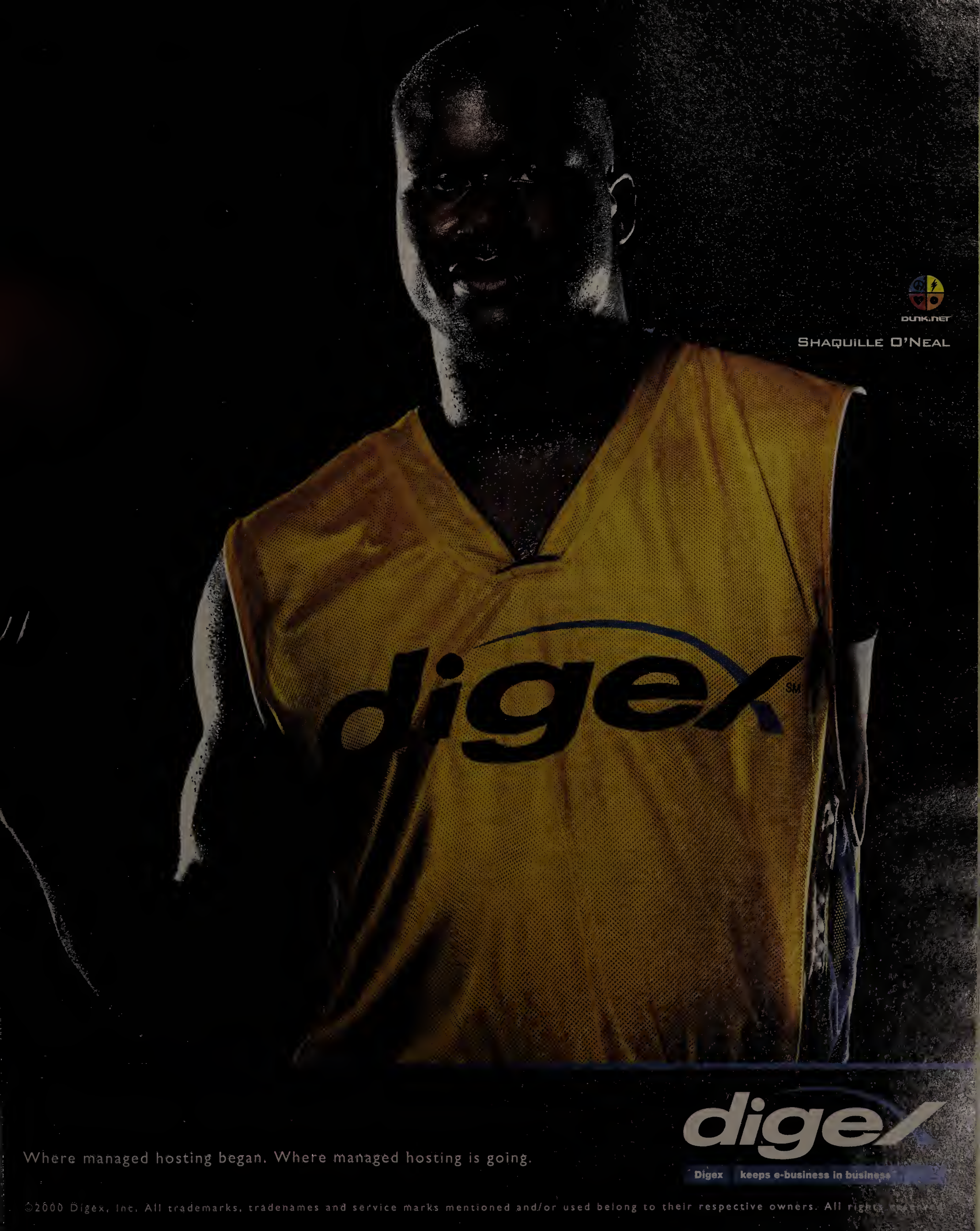


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MARYFRAN JOHNSON

# Computerworld.com II

THOSE OF YOU WHO'VE recently launched or relaunched your Web sites would recognize the look in our eyes here at *Computerworld*. It's that slightly crazed, distracted gaze. Optimistic yet worried, hopeful yet somewhat panicky. You jump at the sound of your Web developer's every expletive. You obsess over type sizes and page-loading speeds. Why does the site work so well on Internet Explorer but crash on Netscape Navigator? (You suspect Bill Gates and his monopolistic minions, but then chide yourself for paranoia.)

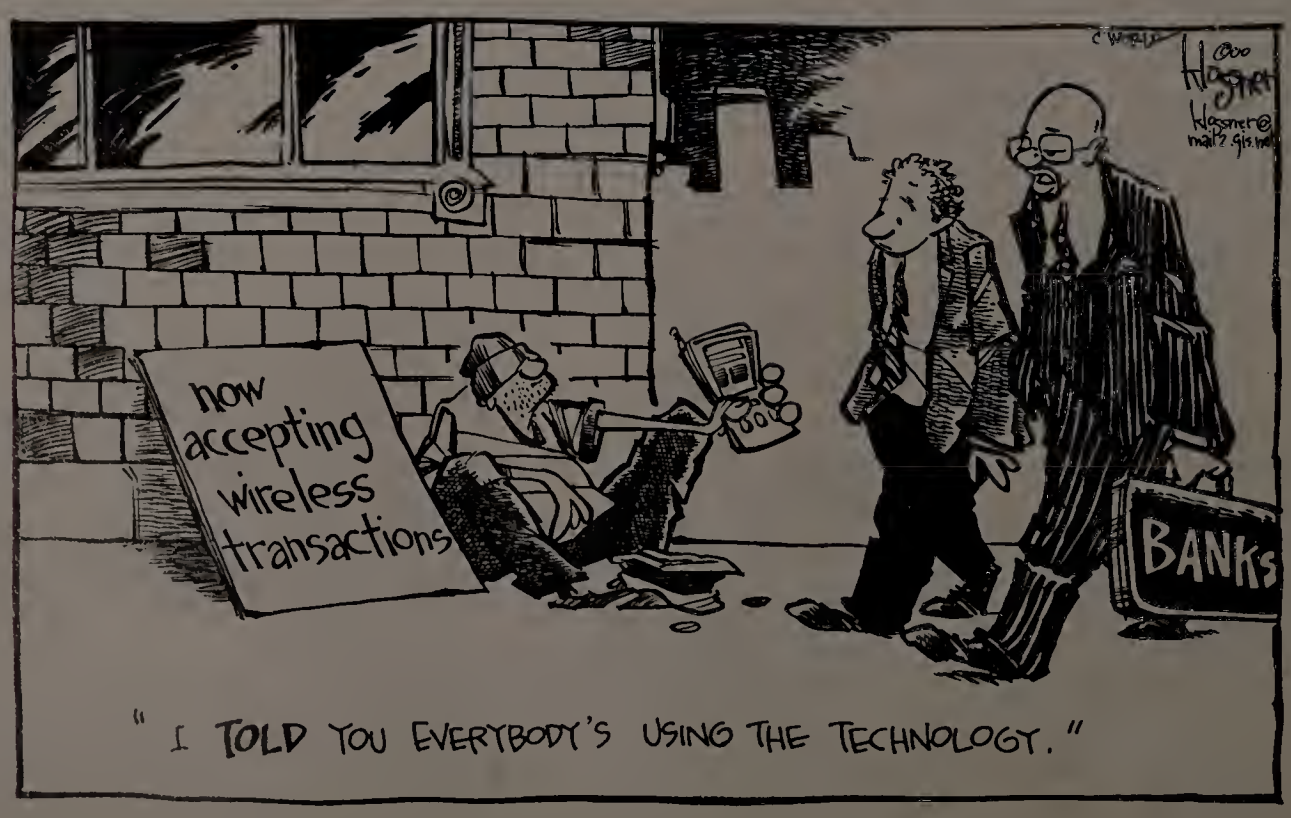
**MARYFRAN JOHNSON** is editor in chief of *Computerworld*. You can contact her at maryfran_johnson@computerworld.com.

Finally, you just launch and be damned. You hold your breath. You fix a bunch of glitches. You hope the Internet Angel of Death doesn't land on your windowsill. Eventually, you exhale. Feels good, that does. We've been exhaling, gratefully, for about a month now, having relaunched Computerworld.com late last month to a very positive reception from alert readers who noticed the many changes and were kind enough to drop us notes.

What's so great about the new Computerworld.com? The word that comes to my mind isn't even a real word: *findability*. It's just so much easier to find what you're looking for, mainly thanks to the way we've cleaned out our own content closets and reorganized them with readers in mind. Clearly worded navigation bars at the top of the site let you quickly browse and access everything, from news, business and technology stories to opinion pieces and IT resources like our salary surveys or Emerging Company profiles.

But the most experimental and exciting part of our new site lives under the navigation tab marked "Community Services." That's where we're building a series of special-interest IT communities by topic, beginning with e-commerce, enterprise security and Windows 2000. We plan to expand your communities to include a dozen IT-specific, hot-topic interests. We need your direction and help with that.

At its heart, journalism is a service profession. So the chance to serve readers more directly through communities — to advocate for you, to deliver the information you need, to hook up the experts you want to talk with in forums — is journalism at its best. And our communities editor, Brian Sullivan (brian_sullivan@computerworld.com), is at your service for that very reason. So go pester the man, with our blessing. You'll know him by the slightly crazed look in his eyes. ◗




ERIK SHERMAN

# Widen wireless highway before adding gadgets

WITH ITS RECENT announcement introducing wireless messaging middleware, IBM is joining other vendors in proclaiming that it's time for mobile workers to connect to corporate back offices while in transit. Enabling mobile workers to use wireless Internet access from cell phones, PDAs and even pagers to reach databases and applications sounds fine, until a closer examination shows some major problems that no piece of middleware will cure.

**ERIK SHERMAN** is a writer in Marshfield, Mass., who regularly covers technology and business issues. Contact him at esherman@reporters.net.

Start with easy problems, like data entry. Handheld devices come with either alphanumeric keyboards small enough to prove uncomfortable for elves or standard phone keypads that force users to push buttons multiple times to get the letter or number of choice. The result is wasted time — and employees who will ignore inconvenient technology.

Next is the nature of the user interface. Sure, there's a browser on the device — a tiny one. Web sites are finding that wireless Internet technology needs its own set of pages and approaches, including low use of graphics, limited functions and constrained options. In other words, corporations can plan on paying for development, maintenance and page management for both wired and wireless sites.

But the biggest issue, reliability, is out of the IT department's hands. Ever try to complete a conversation on a cell phone, even in a major metropolitan area? If voice connectivity is flaky, will the phone's built-in browser work any better? All these hurdles could be managed, but the chances of the last one being cleared are unlikely. Oh, voice and paging systems can be reliable: Ask anyone who has used wireless communications in Europe or Asia, where there is a stronger commitment to service. U.S. telecommunications carriers, though, seem more interested in the easy solution.

A communications consultant once mentioned to me how a Japanese firm planned a cellular system in Tokyo. The company had its own engineers and also brought in U.S. consultants from one of the biggest names in cellular technology. After due consideration, the consultants said the company needed about a dozen antennae in the city. Staff engineers had a slightly higher esti-

mate, falling somewhere between 200 and 300. The Japanese company went with the more thorough implementation, and the consultants again demonstrated the penny-wise and pound-foolish attitude that is always satisfied with the cheapest solution.

Yes, profits are nice and necessary, but what good are they if services don't work? Instead of constantly trying to build out new features to push more gadgets and monthly corporate revenues, U.S. telecommunications companies should improve service so that it's really useful. The only way for that to happen is for all of us who accept second-rate treatment to start speaking up. Let's insist that vendors stop introducing even more traffic onto the wireless highway, at least until it has been expanded from a two-lane dirt road. ◗

DAVID MOSCHELLA

# Internet opens new chapter on business reading

WITH THE MIND-BOGGLING success of the Harry Potter books and the annual rush of "what to read on your summer vacation" articles, the simple act of reading is now very much in the news. This makes now as good a time as any to ponder the following question: Five years into the Internet era, have there been any significant changes in the way we read?

It makes sense to write about this topic in *Computerworld* because the technologically oriented business community is arguably the most active area of change, rivaled only by college students and other twentysomethings. In the broader consumer market, reading habits don't seem to have shifted very much at all. Whether one reads novels, nonfiction, newspapers or *The New Yorker*, traditional print products still dominate.

**DAVID MOSCHELLA** is vice president of knowledge strategy at MeansBusiness Inc., an Internet start-up. Contact him at dmoschella@earthlink.net.

But it seems that business reading is changing fundamentally. What was once mostly a matter of general-interest browsing is now evolving into much more of a specific, on-demand experience.

To see why, let's look back at how things were before the Internet. If you were like most people, you probably tried to keep up with your work reading requirements through selected sets of newspapers, magazines and possibly books. Since maintaining your own personal and/or business library was often expensive in terms of time and space, you probably threw away nearly all your newspapers and magazines; only your books were spared.

Since you knew that most publications were destined for the Dumpster, your business reading likely included articles that were necessary to do that day's job and those that might someday be necessary. The implicit assumption was that if you didn't see an article when it was new, you'd probably never see it. We all know serious knowledge workers who used to — and perhaps still do — regularly scan a wide range of business publications to reduce their worry about possibly missing something.

The Internet changes this in two fundamental ways. Most obviously, old articles no longer disappear. The cost of storing documents on the Internet is close to zero, and search engines, portals and specialized Web sites make finding older documents relatively easy and reliable, at least in theory. As a result, we don't really have to worry so much about articles being lost.

Equally important, the supply of relevant reading materials has increased enormously. The Web makes mass-market publishing far more affordable; thus there are more sources than ever for potentially useful information.

In most business fields, there's simply no way that we can justifiably spend the time necessary to keep up with reading material that *might* be useful.

Consciously or unconsciously, the reading patterns of knowledge workers are changing accordingly. A significant portion of reading time is currently shifting from "just-in-case" to "just-in-time" activity. In other words, the bulk of our business reading experience will steadily move away from general knowledge gathering and will become much more of a transactional, on-demand experience. Increasingly, we will find and absorb business reading material if and when we need to.

It is indeed ironic that Web reading is still often referred to as "browsing," even though this is nearly the opposite of what is actually happening. Knowledge worker information needs are expanding rapidly and becoming less predictable. The only conceivable way to deal with this unprecedented learning challenge is to turn business reading into a reliable, on-demand transactional experience. Fortunately, this is a task for which the Internet is almost ideally qualified to deliver. ◗

# READERS' LETTERS

## MBA programs won't help hiring problem

ALTHOUGH it's great that enrollment to MIS and CIS programs is on the rise, this is exactly what the industry doesn't need ["MIS: Big Major on Campus," Business, July 10]. We need technical people with technical skills, not the same skill sets that MBA programs have been spitting out for the past decade. Sitting in front of a screen writing code is still the foundation on which the New Economy is based, but that isn't what interests these newly minted professionals. They may know the terms but have no real understanding of what is going on underneath.

Universities should be looking to bring their computer science degrees up-to-date. The jobs that stay vacant are for people with skills that aren't being taught in school. This shouldn't be surprising when courses are being taught by people who don't have the skills to get a job in today's market.

**Daniel Hunt**
Washington

## Retail business, not Net, at fault in demise

THE REAL ISSUE behind failures in the retail toy business is just how tough the industry is ["CEO: Partnership Hurt Toysmart," Page One, June 26].

As a former Toys R Us vendor, I can tell you that its year-to-year business is no joyride, and several years Toys R Us has been saved by either Barbie or Nintendo.

Merchandising is an unforgiving science, killer apps or not. Speed is a relative thing: Too fast is as bad as too slow. New world vs. old world is a mentality I am sick of reading about. It hides the real analysis.

**Gene Russell**
Gene Russell & Associates Inc.
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## Gates' new position makes perfect sense

BILL GATES' decision to concentrate on software development and hand over the CEO position at Microsoft to Steve Ballmer may prove to be the best and biggest decision he has ever made ["The Great Divide: Users Split on Impact of Microsoft Divestiture," Page One, June 12]. Anyone who believes this is a sign that Gates is slowing down or beginning to fade into the background is sadly mistaken. Ballmer is as brilliant and savvy as Gates.

Microsoft has lost something by not allowing Gates to concentrate on software development. That all changes under the new structure. That one change means the industry should expect Microsoft to introduce better products in the future. It demonstrates the determination of the company, and it speaks volumes about Microsoft's commitment to remain a dominant player in the Internet economy.

**Jimmy Castro**
Austin, Texas
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## Seven unspoken words

THERE MAY be a shortage of IT workers, but whenever a corporate IT manager claims, "We have looked for months and simply cannot find qualified workers," I figure there are seven unspoken words that tell the full story: "for what we are willing to pay."

**Glenn Galen**
President
Integrity Software Corp.
Minneapolis

**COMPUTERWORLD** welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. Internet: letters@computerworld.com. Include an address and phone number for immediate verification

GEOFFREY JAMES

# Looking to fill an IT job? Avoid these 10 mistakes

WHEN I MANAGED IT projects, I remember being incredibly annoyed with the human resources department when it tried to "help" me find programmers. My experience wasn't unusual, according to top headhunter and best-selling author Nick Corcodilos, whose Web site (*www.asktheheadhunter.com*) is something of a mecca to high-tech job seekers. In a recent conversation, Corcodilos described the worst mistakes that's he's seen while watching dozens of companies struggle through the hiring process.

GEOFFREY JAMES (*www.geoffreyjames.com*) is the author of numerous books and articles on high-tech business.

Here's my summary of his observations, in the format made popular by David Letterman:

**10. Being too passive.** Recruiters passively run newspaper advertisements, then sort through the résumés. Top talent, however, is unlikely to be looking in the want ads and will probably have to be recruited from other companies.

**9. Focusing on HR.** Recruiters spend time reading HR journals and going to HR conferences instead of learning about their client companies' industries. Recruiters should read industry trade magazines and go to industry conferences then use what they learn as research to build contacts.

**8. Asking dumb interview questions.** Recruiters often have a set of pat questions like "What do you want to be doing in five years?" Such queries seem irrelevant and silly to technical gurus.

**7. Depending on résumés.** Technical people revel in the details of their work and often write résumés that are clusters of acronyms and jargon. Recruiters often reject such résumés in favor of well-written, but less substantive résumés that are the hallmark of the professional job hunter.

**6. Using a résumé-screening program.** Such programs are easily fooled. Unqualified candidates can get on the short list merely by writing a résumé that includes buzzwords from the job description.

**5. Assigning paperwork.** Recruiters often start the interview process by handing out a pile of paper forms. This makes technical people feel like they're applying for a loan rather than offering their valuable services to a company that needs those services.

**4. Underutilizing the Internet.** Recruiters typically use the Internet only to post job descriptions and gather résumés. Instead, they should use the Internet to search industry-specific newsgroups for people who have the knowledge and experience to become potential employees.

**3. Forcing hiring managers out of the picture.** In many companies, HR won't let the hiring managers get involved until recruiters have selected a short list of candidates. But the hiring manager is often the very person who has the best industry contacts.

**2. Not spending time in the trenches.** If a recruiter is going to help hire people for a certain department, he needs to know what that department is like and what kind of people thrive in that environment.

And the No. 1 mistake:

**Never breaking the rules.** Most HR departments become collections of rules that continue to grow in size and complexity. I remember that at one of my former employers, pages of paperwork were required to open a job requisition, let alone actually hire somebody.

IT managers need more control over the recruiting and hiring process, helping HR to locate top candidates who aren't currently job hunting. Meanwhile, IT must spur HR to eliminate needless paperwork and bureaucracy. The alternative is to let valuable "human resources" end up working for the competition. ◗

MICHAEL GARTENBERG

# Moore's Law now has a diminished impact on users

THIRTY-FIVE YEARS ago, Gordon Moore, the co-founder of Intel, observed that the transistor density of semiconductor chips doubles roughly every 18 months. This observation has proved accurate and became known as Moore's Law. Its net effect has been new PCs that are almost twice as powerful as previous-generation systems. As PCs became more powerful, their capabilities and functionality increased and their appeal broadened the market for potential adopters with each successive generation.

MICHAEL GARTENBERG, former vice president and research area director at Gartner Group Inc., is a partner at Dellet LLC, a venture capital firm in Englewood, N.J. that focuses on the Israeli market. Contact him at michaelg@dellet.com.

Today, Moore's Law remains in force and, by most accounts, will continue through at least 2017. But does it still benefit users and empower them in the way it has in the past? The answer is no. It now has a diminished impact on users. With Pentium III technology as the current standard and with system speeds of 1 GHz available, entry-level and trailing-edge systems are, for the first time, suitable for mainstream use. "Fast" has finally become "fast enough." For end users doing mainstream productivity work involving word processing, spreadsheets, e-mail and Web browsing, the performance difference in going from a 500-MHz Pentium III to an 850-MHz Pentium III just isn't readily apparent.

I can already hear some of you arguing that this line of reasoning is wrong. For certain classes of users, you might even be correct. Sure, if you're an engineer working on the human genome project, or a 15-year-old kid trying to play Quake III across the Internet, fast might not be fast enough. If you're creating a massive engineering simulation or trying to create the next *Toy Story* sequel in real time, fast might not be fast enough. But if you're like me and primarily use a suite of office products for word processing, spreadsheets, presentation graphics and e-mail; run some version of 32-bit Windows (or some other comparable operating system); and occasionally use a few other productivity applications, then fast is definitely fast enough.

While fast will never be fast enough for some, a threshold has been crossed for most users. While relatively cheap PCs have always been available, no one ever wanted to purchase them because they couldn't run the latest generation of software. The current slowdown in the benefits of Moore's Law has made it reasonable to consider cheap PCs. With the advent of low-cost and more-than-capable systems, it's a good time to rethink buying patterns of the past.

In the old days (circa 1992), buying decisions were simple: You bought the fastest processor on the market and added as much memory and disk space as you could afford. That's no longer the best approach. You don't need the fastest processor that Intel or AMD has to offer. Based on user requirements, many of you should consider entry-level Pentium III systems with 128MB of RAM for most of your mainstream users. And it's time to think about longer depreciation cycles. Think about extending that desktop's life cycle from three years to four, and your laptop's from two years to three.

So is this the endgame for PCs? Is the revolution over? Hardly. Nothing lasts forever, and neither will this lull in the benefits of Moore's Law. Systems running into the multi-GHz range will once again broaden the appeal for leading-edge technology and reset the curve. Technologies that will include real speech recognition and cognition that are integrated into the core operating system will one day be possible, and user interfaces will one day advance beyond the graphical user interfaces that we have been saddled with for nearly 20 years. But that will take some time. Real advances will require not just faster processors, but also the software advances that go with them. The current reality is that for the first time since the PC was introduced, users can safely ride price curves down and extend the life of older systems. So enjoy the ride while it lasts. ◗

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# BUSINESS



## TROUBLING HIRING TRENDS

There are 400,000 vacant IT jobs in the U.S., say analysts, but women, minorities and people with disabilities are still being closed out of science and technology jobs, a congressional commission recently reported. The commission has called on government and industry to change such patterns and work to foster greater diversity in IT. ▸ 38

## OIL-CHANGE ASP

Oil Changer's old PC-based system for uploading real-time business metrics from its retail stores to headquarters wasn't nimble enough. So the quick-lube chain swapped it for a client/server-based system, which has since evolved into a profitable application service provider business. ▸ 40

## FOILING FRAUD

As concerns about credit-card fraud grow, Visa International is implementing a plan to tighten security among its member merchants. Last month, the company unveiled a new payment-authentication program. In September, it plans to ask merchants to follow security standards. But analysts say the new program isn't up to par. ▸ 42

## MASSIVE MERGER

In 1998, TransCanada PipeLines and Nova Chemicals joined forces in the largest merger in Canada's history. As one employee put it, the corporate marriage was "like the Care Bears meet G.I. Joe." Two years later, the new company's IT budget is less than the two companies' combined expenses before the merger. ▸ 44

## WIN 2k WISDOM

Trying to decide if you should shift to Windows 2000? Companies that have already done so have found that it's not so easy, and they're offering warnings about potential hurdles and advice on how to overcome them. ▸ 46

## THE NEW IT WORKFORCE

You're no longer just competing against your fellow techies for top IT jobs. As the line between business and technology fades, companies aren't just looking for workers with technology know-how — they're seeking strategic business thinkers who also know their way around the IT shop. ▸ 48

## FOSTERING IT LEADERSHIP

As the CIO at Sears, Roebuck and Co., Jerry Miller is responsible for the professional growth of the company's 1,700 IT workers. In an interview with *Computerworld*'s Melissa Solomon, Miller talks about the critical elements in leadership development programs and how he identifies and trains his rising stars. ▸ 51

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FRANCISCO CACERES

# JOBS IT DREAMS ARE MADE OF

**WHAT MAKES FOR** the perfect IT job? Tons of money and stock options? Lots of time off and flexible scheduling? Unlimited training? Yes, yes, yes and yes. But it takes a whole lot more, too, according to respondents to an online *Computerworld* poll about the perfect IT job. Turns out, the perfect job has a lot more to do with respect, communication with the boss and support for employees' career goals.

52

# Congress Blasts Poor IT Diversity Record

*Calls on government, industry to increase women, minorities and disabled workers*

BY PATRICK THIBODEAU AND MEGHAN HOLOHAN
WASHINGTON

EILEEN COLLINS, a veteran astronaut who has been on three space shuttle missions, recalled the problems she faced in seeking technical training.

Peer pressure in high school has "an incredible influence," Collins said, adding that she was "more comfortable taking classes with my friends than branching out to mostly male classrooms."

Collins told her story earlier this month before a congressional commission that said women, minorities and people with disabilities are vastly underrepresented in science and high-tech jobs. The commission called on government and private employers to do more to diversify the workforce.

As the need for high-tech workers grows, the U.S. is "exhausting the intellectual capital that is fueling our economic expansion," said Elaine Mendoza, chairwoman of the Commission on the Advancement of Women and Minorities in Science, Engineering and Technology.

Meta Group Inc. in Stamford, Conn., has estimated that there are 400,000 vacant information technology jobs in the U.S. According to the U.S. Bureau of Labor Statistics, 5.3 million technology jobs will have been created between 1998 and 2008.

The commission's report analyzed what Mendoza termed "disturbing" trends in high-tech job training and hiring.

For instance, racial and ethnic minorities will represent nearly one-third of the U.S. workforce by 2020, but today Hispanics hold only 3% of high-tech jobs, and African-Americans hold 3.2%, according to the commission's report. People with disabilities today make up nearly 14% of the workforce but hold less than 6% of the science and technology jobs. Only 9% of U.S. engineers are women, and 27% of the country's computer scientists and programmers are women.

"Though it is difficult to hear, it's important to emphasize that quick fixes are unlikely to occur," said Norman Fortenberry, acting director at the National Science Foundation's human resource development division. It takes "sustained interventions and investments" along the entire educational continuum and support for new science and technology professionals, Fortenberry said.

One step that can be taken to encourage people with disabilities to take science and technology jobs is to make offices and high-tech training courses wheelchair-accessible, said Joan Ripple, a project specialist at Berkeley, Calif.-based InfoUse, which specializes in the development of disability and rehabilitation information using computer technology.

The commission's report cited wide-ranging educational, financial and cultural barriers that are keeping minorities and women out of high-tech jobs, including bias and the absence of mentoring.

It offered recommendations including education reforms and greater financial assistance to underrepresented students. The report also called for a public/private partnership campaign to implement the recommendations.

"Growing the American talent pool will require a nationwide call to action and a major shift in how we educate, train and recruit citizens" in high-tech fields, said Mendoza, president and CEO of software developer Conceptual MindWorks Inc. in San Antonio. ◗

AT A GLANCE

## Struggle for Diversity

- In 1997, U.S. universities awarded just **44% of doctorates in engineering** and **52% of doctorates in physics** to U.S. citizens, according to the National Science Foundation.
- By 2020, racial and ethnic **minorities** will make up almost **one-third of the workforce,** and women close to one-half.
- Currently, underrepresented minorities make up **25% of the workforce but less than 7%** of the science, engineering and technology fields.
- Only **9%** of U.S. engineers and **27%** of computer scientists and programmers are women.

SOURCE: REPORT OF THE CONGRESSIONAL COMMISSION ON THE ADVANCEMENT OF WOMEN AND MINORITIES IN SCIENCE, ENGINEERING AND TECHNOLOGY

# Large Banks Lag in Online Transactions

BY MARIA TROMBLY

More customers are turning to online banking, but it's not the largest banks that are leading the charge, according to a new report from Credit Suisse First Boston.

Two regional banks — Winston-Salem, N.C.-based Wachovia Corp. and Provident Financial Group Inc. in Cincinnati — have the largest percentage of their customer bases using their online services, 21% and 17%, respectively.

Of the top 100 banks in the U.S., 80% offer online banking, and many others say they will start this year, said the report's author, James Marks.

Wachovia recently became one of a handful of U.S. banks to announce it will make wireless banking available to its customers [Page One, July 17].

According to analyst Linda Alt at Gartner Group Inc. in Stamford, Conn., another service that may soon start driving customers to online banking is online bill presentment, which isn't available from many billers. ◗

# Delphi CIO Learns New (Economy) Tricks

*Says gap is closing between dot-coms, Old Economy players*

Delphi Automotive Systems Corp. is the world's largest auto parts marker. The Troy, Mich.-based company operates 176 manufacturing plants in 38 countries, posted revenue of $29 billion last year and has been in the midst of a major technology infusion since its spin-off from Detroit-based General Motors Corp. in May 1999.

*Computerworld* reporter Lee Copeland spoke with Delphi's CIO, Peter Janak, who says information technology is closing the gap between Old Economy and New Economy firms.

**Q: Does the Internet make the gap between Old Economy and New Economy players less relevant?**

**A:** I think so, because us Old Economy guys with a whole lot of money are going to avail ourselves with Internet tools. ... We are becoming more nimble. To make something out of a piece of steel is still going to take the length of time that it takes to make it out of steel, but the actions that you take, the decisions that you make and the response to the marketplace — that is the part that will become quicker. The ability to move and make decisions will speed up significantly.

PETER JANAK, CIO of Delphi, says start-ups could benefit from running "pull" operations

**Q: What are you learning from new technology companies like Dell Computer Corp. and its build-to-order model or the new breed of Web start-ups?**

**A:** We're picking up a lot of insights. But you have to do it in the context of your real business.

Not to belittle Dell, but it's a lot easier to make a computer than it is to make a car. It's a simpler manufacturing process. There's not as many models or choices. It's easier to do, but you can transfer some of those concepts to our environment. . . . We have learned things to do internally . . . to serve our employees more efficiently and cut down on our internal bureaucracy impediments.

**Q: What can some of the start-ups learn from Delphi?**

**A:** People could learn how to run a "pull" operation. In classic mass production, you turn on a machine and produce as many parts as you can, or as many cars or washing machines, so you can get the maximum utilization out of the machine. And then you pump these parts out, and then you try to sell them as quickly as you can so you get them off your books. That type of organization is called a push operation.

A pull system is, you get the order from a customer, then you build according to what the customer wants, so you pull the product out of your system.

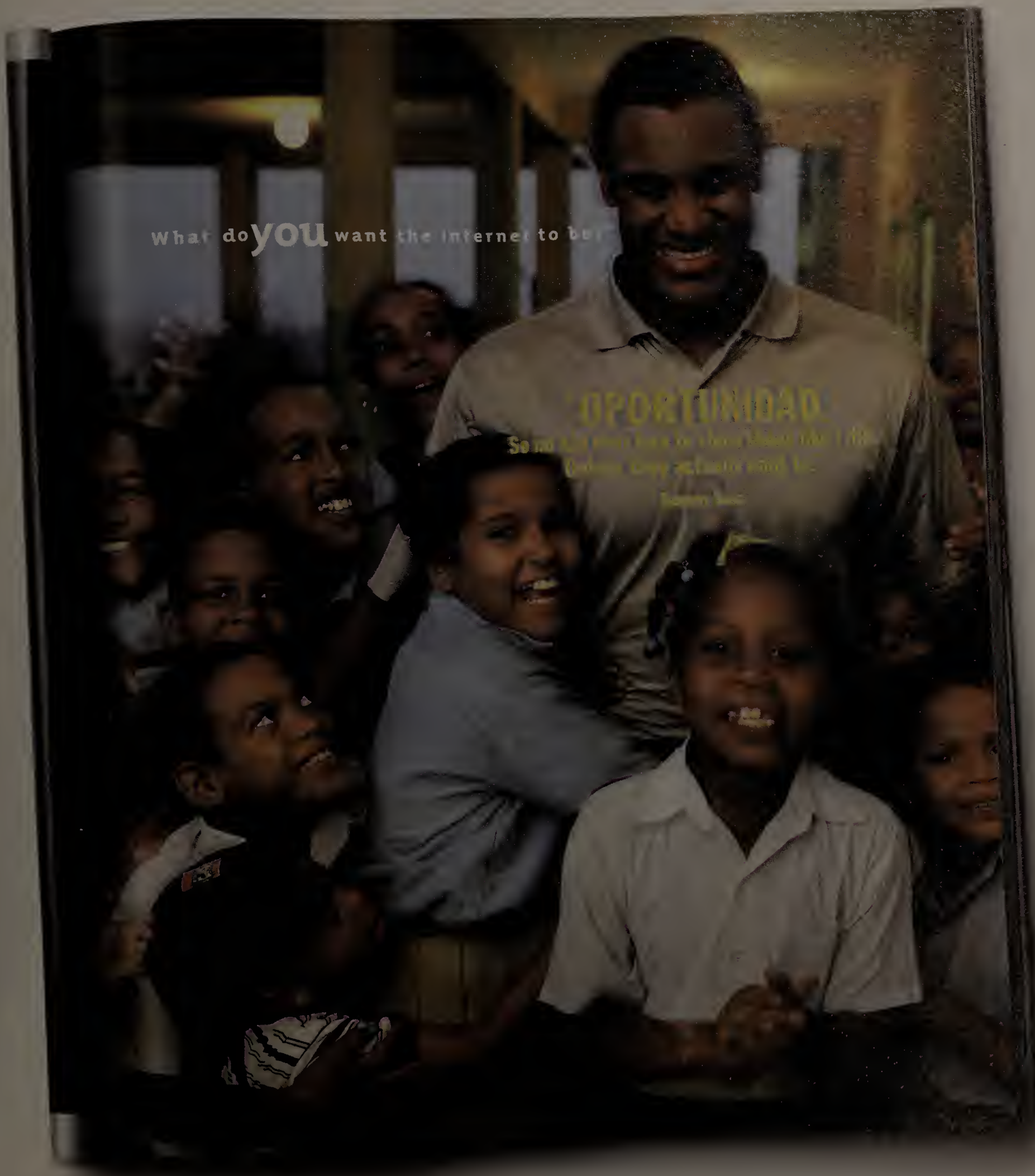
It's a different philosophy. In a pull philosophy, you minimize the amount of inventory in the system, and there is a much less wasteful approach.

It fits in really well into the New Economy. . . . We're opening up our supply chain and moving to an electronically supported pull system.

**Q: There's lots of talk about build-to-order in the automotive industry, but isn't it still a long way off?**

**A:** It depends on what you call long. There is work being done on it now. Several [automakers] are coming up with functional requirements.

Will we have effective build-to-order within a year? I would not be surprised if we did. ◗

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# DSS Leads Firm To ASP Business

*Oil-change chain enters market for renting, servicing client/server apps — for competitors*

BY MARK HALL

CARRYING A client/server application into the Internet Age can be a chore. Doing so as an application service provider (ASP) is a true burden.

But that's Joey Castaneda's job. As vice president of information systems at Lube Management Corp. in Pleasanton, Calif., he oversees the company's decision-support software (DSS) business, which helped transform the company from a retail quick-lube enterprise into a software provider as well. The company acts as an ASP for the software, renting it to customers, who are, in some cases, also competitors.

Lube Management is the parent company of Oil Changer Inc., a California quick-lube retail chain. In 1998, Castaneda led the transition to the client/server-based DSS from an old PC-based batch system that uploaded data from Oil Changer's 44 stores to headquarters.

"Management needed real-time data, such as where labor should be distributed among the shops," Castaneda said. The old method couldn't deliver it.

Success with the new client/server DSS came lightning quick. In the first month, the company saved $100,000 on labor alone, Castaneda said. Some store managers were scheduling too many workers and others not enough. By getting real-time data, corporate managers could reroute workers to the right store on a given day.

Such returns inspired the creation of a business unit to sell the DSS application to Oil Changer competitors outside the territories of its retail stores. Management was so excited by the prospect that it created Lube Management to serve as the holding company for Oil Changer and turned Castaneda's information technology group into a lucrative profit center.

**CASTANEDA'S IT group turned into a profit center**

Castaneda said that although he believes he timed his entry into the ASP market perfectly and that client/server "was the right way to go," he understands that the architecture has limits. With his system, users must invest in thin-client point-of-sale terminals to access the DSS. For most quick-lube operations, this hasn't been a drawback. But "in the long run," he said, "browser-based apps will win."

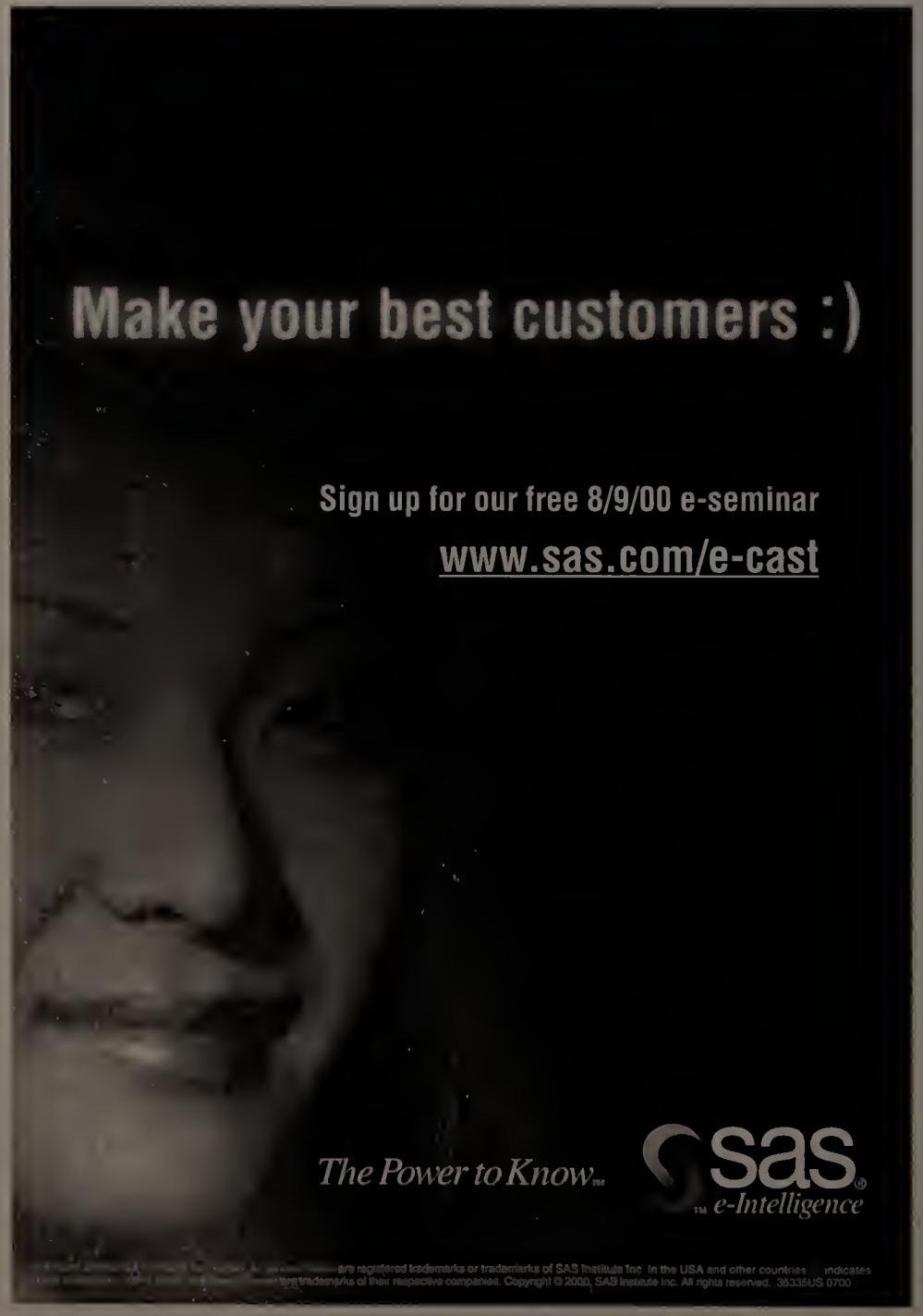
Kurt Galle, MIS manager at American LubeFast Inc. in Lawrenceville, Ga., said that because he uses Castaneda's DSS with another client/server application, it works well. "Keeping technology similar is an advantage," he said.

Just the same, "if I were doing it today, I'd build it as a Web app," Castaneda said.

Castaneda may have more time than he thinks, said Laurie McCabe, an analyst at Boston-based Summit Strategies Inc. Client/server vertical applications will remain viable among ASPs for some time, she predicted.

Indeed, start-up National Airlines Inc. in Las Vegas recently installed remote services from Talus Solutions Inc. in Atlanta, which uses a client/server, thin-client approach similar to Castaneda's.

Galle said he thinks that as long as client/server technology continues to be ahead "in key functional areas," he and other IT managers will use it.




# ASPs Helping Companies With Hiring

BY JULEKHA DASH

Keith L. Vencel, a product manager at Sutter Health in Sacramento, Calif., is used to spending several hours each weekend sifting through about 100 résumés. Of those, a dozen might yield potential interview candidates.

But two weeks ago, the nonprofit health care network went live with a recruiting application from San Francisco-based Recruitsoft.com Inc. that Vencel hopes will give him his weekends back.

Other companies are also turning to recruiting software to help prescreen résumés and track candidates. And some — like Sutter — are going beyond buying the software and are hiring application service providers (ASP) to handle their recruiting processes.

**We Want You**

*Some firms that offer recruiting applications via a hosted model:*

- Hire.com
- Recruitsoft.com Inc.
- Personic Inc.
- Resumix Inc. (r[illegible] merged with HotJobs.com Ltd.)

But while an ASP can offer cost savings, this model may not be right for every company, according to analysts.

With the current labor shortage, businesses that don't have employees they can dedicate to maintaining recruiting software may prefer to use a service provider, said Kazim Isfahani, an analyst at Giga Information Group Inc. in Cambridge, Mass. But larger companies that need more customized applications or are concerned about security may prefer to purchase the software, he said.

Sutter chose to go with the ASP model because Recruitsoft hosts and maintains the recruiting application so Sutter doesn't have to purchase additional servers and have staff support the software and hardware, Vencel said.

The application is currently installed in fewer than a half-dozen Sutter facilities, but Vencel said he hopes to have it running in 44 facilities in eight geographic regions. Purchasing a recruiting software package would require an investment of about $500,000, Vencel estimated.

Rather than paying a fixed monthly fee, Sutter pays an annual fee based on the number of candidates it hires using Recruitsoft. According to Recruitsoft, the "pay-per-hire" fee starts at $500.

But even though recruiting applications can save some time, the process of finding and retaining the right people can't be completely automated, according to David Foote, a managing partner at Foote Partners LLC, a New Canaan, Conn.-based consultancy that specializes in information technology workforce issues.

"A good match starts with whether [a candidate's] personality meshes with the place," said Foote, who is an occasional *Computerworld* columnist. "It doesn't come on a résumé."

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# Visa Program to Fight Online Fraud Debuts

BY MARIA TROMBLY

Amid increasing concerns about online credit-card fraud rates, Visa International Inc. is addressing the problem with a two-part plan.

The first part, a payment-authentication program, was launched late last month. The second part, a series of security standards that merchants will be asked to follow, is slated to take effect in September, according to Brian Buckley, vice president of product risk and analysis at the Foster City, Calif.-based company.

The initiatives are expected to reduce Internet transaction disputes by as much as 50%.

However, Avivah Litan, an analyst at Gartner Group Inc. in Stamford, Conn., said Visa's new security measures aren't much better than its old certificate-based Secure Electronic Transaction model.

"It was complicated. No one understood it, and no one wanted to use it," Litan said.

According to a recent survey by Gartner Group, credit-card fraud is 12 times more common for online merchants than their off-line counterparts. Credit-card fraud contributed to about $230 million in losses last year, said Litan. That number could go as high as $500 million this year, she added.

The Visa program provides merchants with options to authenticate payments online, protect privacy and ensure that data in transmission is unchanged. The model was designed to work with chip cards, mobile phones, personal digital assistants and set-top boxes.

According to Buckley, this model lets different regions and credit-card issuers select the most appropriate authentication procedures. "This has opened up options," he said.

The voluntary standards will address problems such as those recently faced by Wallingford, Conn.-based CD Universe, where hackers were able to look at buyers' credit-card numbers.

"There are instances where consumer information is held on merchant Web sites or on servers that are accessible via the merchant's Web site and is inadequately protected," Buckley said.

Under the new best practices rules, merchants will be required to install firewalls or keep customer credit-card data in a segregated environment.

"The emphasis is on logical data security," Buckley said.

## Fraud Prevention

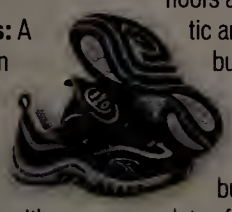
*A sampling of Visa's security best practices:*

- Use a secure gateway to encrypt transaction data.
- Make sure customer card types and account numbers match.
- Treat anonymous e-mail addresses as a higher risk.
- Use third-party fraud-screening tools.
- Encrypt cardholder data transmissions.

# WORKSTYLES

## What It's Like to Work at . . . Reebok International

**Interviewee:** Lynn Stevenson, SAP project manager
**Company:** Reebok International Ltd., the footwear and apparel maker whose brands include Reebok, the Greg Norman Collection, Ralph Lauren Footwear and Rockport Co.
**Main location:** Canton, Mass.
**Number of information technology employees:** Eight employees and two consultants on the core application development team; 105 total IT employees at headquarters
**Number of employees (end users):** 6,100 worldwide; 1,000 at headquarters
**Major IT initiatives:** A global implementation of SAP AG's Apparel Footwear Solution (AFS) module, which Reebok helped develop in a partnership with SAP. "Another big project for IT this year was moving our entire IT infrastructure to a new headquarters building in Canton, 10 miles from our old buildings in Stoughton, Mass."



**IT training:** "In my department, we'll get training in the next version of the SAP AFS module."
**Employee reviews:** Twice per year
**IT career paths:** "They're mapped out individually with your supervisor, and there are options for technical tracks and management."
**Bonus programs:** Spot bonuses in IT for project completion; two annual company-wide bonus programs for management and staff
**Dress code:** "Professional casual. And we're big on not wearing competitive products, but that's not dictated."
**Workday:** "Typically, it's 8:30 a.m. to 5:30 p.m., but right now we have flexible summer hours – as long as an employee gets in their 40 hours for the week, they can leave at 2 p.m. on Friday."
**40 hours a week? Really?** "When we're under deadline, we obviously have to work more, so we like to take opportunities when we're not under pressure to refresh and regroup. For example, we recently had a project kickoff activity where we spent the morning in an off-site team-building activity at Blue Hills Reservation [a local park], and afterward, we all hiked up the mountain for a picnic lunch and let everyone go home at 1 p.m."
**Kind of offices:** The new headquarters has a campus feel with four four-story buildings connected by a "spine." Executives have perimeter offices, directors and above have offices with 12-foot ceilings and staff members have large cubicles in an open workspace.
**Decor:** A modern design with floor-to-ceiling windows, oak floors and trim – "very artistic and cutting-edge." A bubbling fountain is being constructed outside. "When we went on our team-building hike, we took lots of digital photos and made calendars from them."
**On-site amenities:** A basketball court, soccer and softball fields, a track, volleyball and tennis courts, a three-floor gymnasium with a full-length basketball court, two aerobics rooms, two weight rooms, a cardio room, spinning and yoga classes and full locker rooms with "every bell and whistle, from shampoo to hair driers to a massage therapist." The Sundries Shop features Starbucks coffee, stamps, toiletries and film-developing and dry-cleaning services.
**How often does the IT group use the gym?** "It's definitely a more athletic MIS group than you would usually see. We have an MIS league for softball and a basketball team."
**On-site day care?** "That starts this fall or winter."
**Percentage of staff that telecommutes on a given day:** "Nobody in my group does because we interact so much with users. But we have some moms in MIS who work from home. It's on a case-by-case basis."
**Little perks:** A 40% discount off wholesale prices for Reebok products, free screenings of movies with Reebok product placements and opportunities to meet athletes who have endorsement deals.

*– Leslie Goff (lgoff@ix.netcom.com)*

ED YOURDON

# Software, the 'e' way

E-BUSINESS HAS CHANGED more than just the way businesses interact with their customers. In some cases, it has also changed the basic principles and assumptions of software engineering processes and methodologies.

For example, Barry Boehm first provided us with the insight, in his 1981 textbook, *Software Engineering Economics*, that if a software engineer made a mistake during a project's systems analysis phase by misstating or overlooking an end-user requirement, it was 10 times cheaper to identify the problem while the project was still in that phase than to allow it to go undetected until design. If that same error remained undetected until the coding phase, it would be 100 times more expensive to fix than if it had been found when it first occurred.

But there's a fundamental assumption built into this maxim that today's e-business projects are forcing us to confront: Boehm's order-of-magnitude escalation figures are relevant only if it's somehow *possible* to identify the defect during the phase when it occurs. Throughout the 1990s, we often justified prototyping and rapid application development methodologies on the theory that end users were too busy or distracted to make the effort to carefully document their requirements with dataflow diagrams or Unified Modeling Language models. But Boehm still haunted us, because we thought that *maybe* we could have worked harder to articulate user requirements before the first prototype was built.

*We're going through a period of disruptive technology.*

In today's e-business environment, even the most ardent supporter of formal software engineering methodologies has to admit that we're operating in uncharted territory. Not only are today's projects taking place at breakneck speed, a.k.a. "Internet time," but the business environment is so chaotic that it's almost impossible for executives to even define the strategy and tactics associated with the development of a new system. When Jeff Bezos envisioned the requirements for Amazon.com, how could he possibly have known what his needs were, in sufficient detail, to avoid some defects that would eventually become known during coding and testing? Amazon was the start of a new world.

Similarly, formal software engineering advocates argue that if a defect is found during systems development, it shouldn't be blamed on the individual who committed the defect. Instead, it should lead to a re-examination of the process that allowed the defect to occur. One of the more popular approaches is causal defect analysis. Throughout the 1980s and '90s, it gained great favor in the most advanced IT development organizations and was credited with achieving dramatic improvements in software quality and productivity — sometimes as much as a fivefold increase in productivity and a tenfold reduction in defects.

But again, the causal defect approach is based on a fundamental assumption that isn't always appropriate in today's e-business environment. The only reason it's worth investing the time and energy to identify the flaw in a software development process is because we intend to use the same process again; our next project is going to be similar enough to the last project that it makes sense to use the same process. But we're now going through a period of disruptive technology; there's no assurance that project N+1 will have any similarity to project N. As a result, yesterday's process might have to be changed substantially for tomorrow. In turn, it might not be worth the effort to fix anything other than *major* flaws in the process, on the assumption that the details are going to be useful only for a single project.

Obviously, there are circumstances where neither of these two scenarios is valid. Thus, there are circumstances where we can continue to depend on the old, fundamental principles and guidelines of software engineering. But it behooves us to remember what assumptions lie behind those principles, and to ask ourselves whether the assumptions are still valid. E-business really does represent a mind shift, and it's going to change the world of project managers, methodology developers and process purists just as much as that of business executives and customers. ◗

*Yourdon is editor of* Cutter IT Journal, *published by Cutter Consortium in Arlington, Mass. Contact him at* www.yourdon.com.

# The biggest merger in Canadian history produced a pragmatic blueprint for blending wildly different IT organizations. By Kathleen Melymuka

ON JULY 1, 1998, TransCanada PipeLines Ltd. and Nova Chemicals Corp. completed the biggest merger in Canada's history. But for their information technology organizations, the challenge was just beginning.

Although the two giants of Canadian wholesale natural gas had complementary businesses, you'd be hard-pressed to find two more radically different IT shops.

"Somebody said it was like the Care Bears meet G.I. Joe," recalls Irene Lumsdon, planning and training coordinator for information systems at TransCanada, whose merger with Nova was valued at $15.51 billion (U.S.).

In the following 18 months, Russ Wells, the new CIO of the merged company in Calgary, Alberta, had to meld the two IT organizations while supporting the business, completing mission-critical applications and resolving year 2000 issues. And, as often happens in the heat of a merger, the IT consolidation had to be accomplished before there was a clear sense of where the new TransCanada was headed.

## LAY OF THE LAND

Most of TransCanada's 250 IT employees were distributed among the company's business units. Each business unit had its own IT organization. All IT business teams had to answer to a central standards and architecture group, and a companywide infrastructure organization provided common services like telecommunications.

Meanwhile, Nova was in the first year of a seven-year, near-total outsourcing agreement with DMR Consulting Group Inc. in Edison, N.J., and IBM. DMR provided applications development and support, while IBM hosted Nova's telecommunications, server, desktop and infrastructure services. Nova's 18 internal IT employees handled architecture and governance.

The companies had some common desktop technologies, such as Windows NT and Microsoft Office. But Nova was in the midst of a multiyear SAP AG R/3 implementation, while TransCanada used best-of-breed applications. The infrastructures were widely divergent, with Nova running Oracle Corp. software and Microsoft Corp.'s Internet Explorer, Windows NT and Visual Basic, while TransCanada used Sun Microsystems Inc.'s Forte and Java, as well as applications from Sybase Inc., Netscape Communications Corp. and Novell Inc.

When the new management team promoted Wells, formerly a customer service vice president on Nova's operations side, his first steps were to form a transition team with employees from both organizations, research other mergers and develop a merger philosophy.

Next, Wells prepared senior management for what was to come. Although companies enter into mergers expecting efficiencies, Wells says, executives should know that IT costs typically rise 20% to 30% during the first 12 to 24 months because IT is running redundant systems until it consolidates them. Later on, costs should sink 10% to 20% below original expenses as efficiencies kick in.

## CONNECTING THE PIPES

By September 1998, Wells had a plan. He would attempt to merge systems and platforms but would hold off on restructuring the IT organizations for another year, allowing them to work in tandem as they were. He wanted to concentrate on the business rather than on the structure of the IT organization, and he hoped that as the merged company developed a vision, he could use that as a guide in melding the IT organizations later.

But paranoia struck. The internal IT people feared they would eventually be outsourced, and the outsourcers feared they would be shut down.

By October, Wells says, he knew he would have to merge and reorganize the respective IT groups sooner rather than later.

So he devised a plan that included elements from both of the original organizations' setups. TransCanada's distributed IT structure would remain — with modifications. Solution teams would still live in each business unit, and DMR outsourcers — previously responsible for Nova applications — would support IT resources under the direction of internal IT people. Infrastructure strategy and architecture, including vendor decisions and relations, would be owned by TransCanada, while commodity services such as desktop, server and telecommunications support would be outsourced to IBM.

In an effort to address staff concerns quickly, TransCanada, DMR and IBM renegotiated the outsourcing agreements within two months. Achieving that speed meant leaving a few areas unsettled, most notably service-level agreements. "But we said we could negotiate that later," Wells recalls. "We had the framework, and the priority was to get it in place quickly. You've got to let people know where they live. Then they can start working hard."

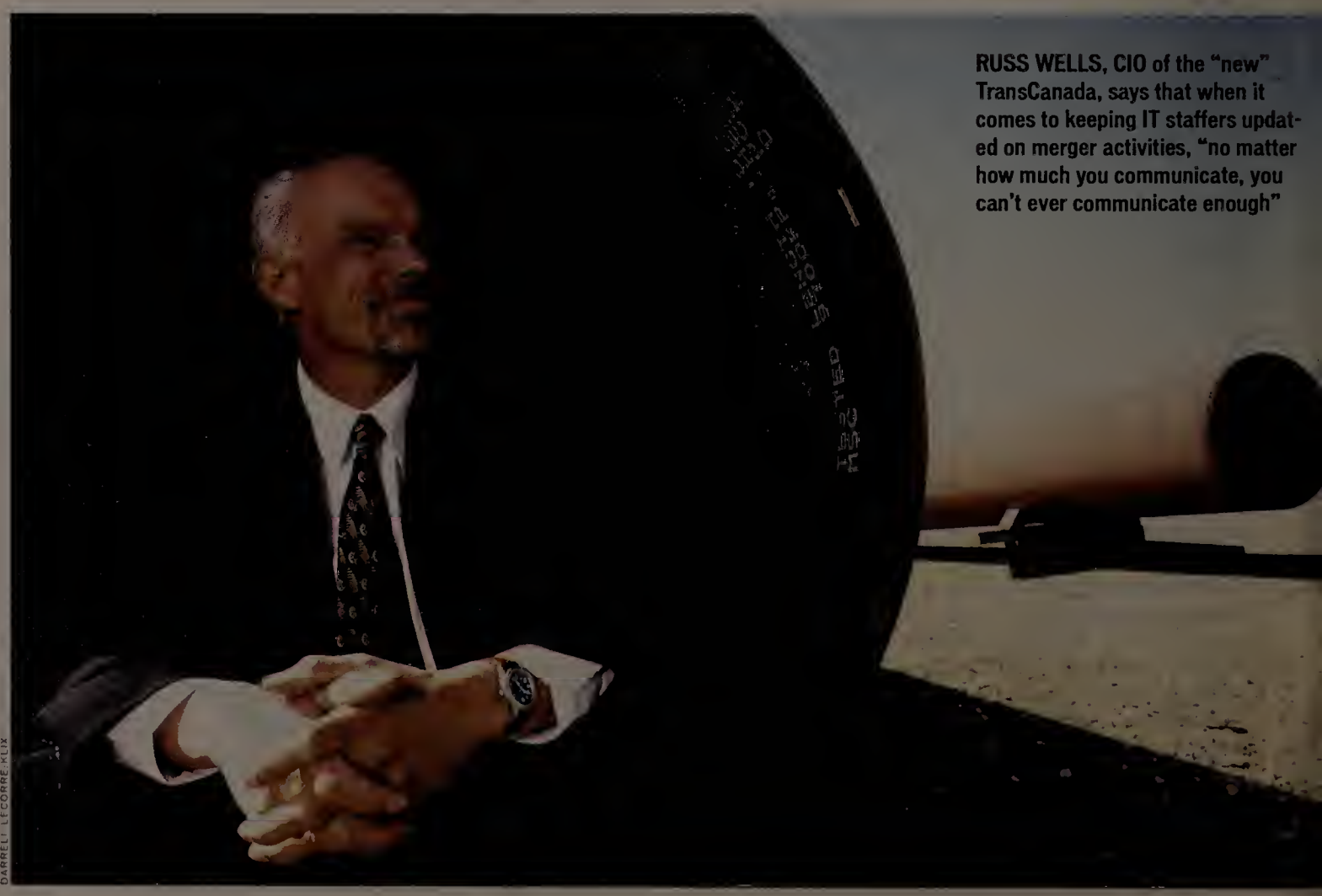
The need to constantly update staff on the status of a merger "is a very serious issue," says Edward M. Roche, vice president of research at The Concours Group Inc. in New York.

If you don't address those concerns right away, he says, IT people will leave. "We've seen cases in the energy sector where [management] failed to address personnel problems up front," he says. "In six months, their organizations had been gutted of skilled people, so when it came time to implement what they had planned, they didn't even have the people to do it."

When TransCanada's new IT structure went into effect in February of last

### TransCanada PipeLines Ltd.

*Calgary, Alberta*
**Asset base:** $426 billion (Canadian)
**Revenue:** $17 billion (Canadian)
**Net income:** $426 million (Canadian)
**Employees:** 4,500
**IT employees:** 250 internal, 600 outsourced



DARREL LECORRE/KLIX

**RUSS WELLS, CIO of the "new" TransCanada, says that when it comes to keeping IT staffers updated on merger activities, "no matter how much you communicate, you can't ever communicate enough"**

year, about 100 jobs shifted from internal to outsourced or vice versa. Only a handful of people left.

In an attempt to remove emotional biases from big companywide systems decisions, Wells set up a decision-making structure that worked through the spring of last year.

A decision board that included Wells and the business leaders from the newly merged company defined the scope and decision criteria, most of which revolved around the bottom line. "It was not a question of which system is better; both were good," Wells says. "It was more a function of cost."

A working committee evaluated the alternatives, interviewing advocates from both sides, sketching out risks and costs and trying to keep passions out of the decisions. "They couldn't say it was cooler or they liked it better," Wells explains. "They couldn't talk about features unless they could quantify some [dollar] value for a feature. So people were forced to be objective."

In each case, the team had to make a recommendation to the decision board within four to eight weeks, and then the board made a decision.

Despite Wells' preoccupation with speed, he says, the decision-making process was worth the time it took because it served political as well as practical purposes. It allowed everyone to see how the decisions were made, and it enlisted strong advocates from both sides. "We made sure that the debate happening in the coffee rooms got aired in the room where we were going to make these decisions," he says.

It worked. Once a decision was made, it was accepted. "Nobody was saying, 'I'll go along, but everybody is going to know that I hate this decision,' " Wells says. "In this kind of work, that's a terrible force to try to overcome."

Wells also emphasizes that "no matter how much you communicate, you can't ever communicate enough." Occasionally, communication fell short at TransCanada, and trouble followed. Sometimes, decisions were implemented before everyone was informed that they'd been made; other times, messages got garbled as they passed down the chain of command.

In both cases, rumors flew, most of them involving conjecture about total outsourcing, total insourcing or whether SAP or best-of-breed applications would win the day. In the end, all those decisions involved compromises.

To stanch rumors and present a unified message, Wells and his team used e-mail and instituted an anonymous but public question-and-answer forum.

But in retrospect, says Jim Brignall, a director in TransCanada's IT group, a single person should have been responsible for communications to keep messages timely and consistent. Roche says he agrees. "Putting into place a communications plan to tell people what is going to happen on a very fast and thorough basis is another critical best practice," Roche says. "Word of mouth is the worst way to go."

## DEVILISH DETAILS

Two years after the completion of the business merger, the biggest problem has been that the devil really was in the details of the outsourcing negotiations. The items that weren't completely nailed down — such as service-level agreements — have come back to haunt TransCanada, and some of the issues have yet to be resolved.

"Because we were inexperienced, we didn't address some of the potential pitfalls until they came up and bit us really hard," Lumsdon says.

For example, dissatisfaction over service levels occasionally led to friction between business people and IT, she says. Since the business staff doesn't differentiate between internal and outsourced staff, that dissatisfaction reflected on everyone. "Our [internal] IT folks, who really pride themselves on doing an exceptional job, feel they're taking unwarranted criticism," Lumsdon explains. Many of these problems could have been avoided if TransCanada had settled the service-level agreements up front, Roche says.

But Wells says that any problems are minor compared to the accomplishments and that the new structure is working pretty well. During the merger, Y2k projects were completed and two mission-critical systems were delivered on time and within budget. And other efficiencies are kicking in: The IT budget for fiscal 2000 is 12.5% less than the actual expenses of premerger fiscal 1998. Next year should yield even more cost savings.

Looking back, Wells says the hardest thing was accomplishing all the organizational and systems integration and planning without a real business framework. "You don't get to say, 'What's the target architecture we want to have when the smoke clears?' " he says. ◗

AT A GLANCE

### Lessons Learned

*TransCanada's management gained the following insights from the merger:*

- **Develop a philosophy up front. It will keep you focused.**
- **Let internal staff and outsourcers know where they stand early on.**
- **Use the opportunity to identify low-priority systems that should be removed and get rid of them.**
- **Save implementation time by getting the whole IT community aligned on critical systems decisions.**
- **Communicate, communicate, communicate.**
- **Articulate roles, responsibilities and service levels clearly.**
- **Think strategically. Try to pick the system that best supports the direction of the new company.**
- **Get ahead of the wave. Merging companies should pick a CIO well before the merger is completed and let him start planning the transition.**

# Rules of Engagement

# Migrating to Windows 2000

## Early movers are encountering political and technical issues. By Dominique Deckmyn

MOST COMPANIES are still on the fence regarding whether to move to Windows 2000. But a handful of organizations already have. Here are some of the lessons they've learned.

### 1. IT TAKES LONGER THAN YOU THINK.

First the good news: Once you get there, Microsoft Corp.'s Windows 2000 pretty much delivers on its promise, managers at pioneering information technology shops say. You get more server uptime, better manageability and fewer help desk calls.

"It has gone exceptionally well," says Scott Newton, senior technical architect at cookie maker Otis Spunkmeyer Inc. in San Leandro, Calif. The company is deploying Windows 2000 to 600 users in 63 offices. He says he has seen some "gotchas": There have been some memory leaks on domain controllers, and setting log-in scripts using group policies have failed.

"If that's the biggest [problem] so far, I'm very happy," says Newton.

But the road to Windows 2000 nirvana can be longer than anticipated.

If you plan to roll out Windows 2000 in the second quarter of next year, start planning today; it will take that long to plan your Active Directory structure and test applications, says Michael Silver, an analyst at Gartner Group Inc. in Stamford, Conn. Other things that have slowed migrations include missing or unreliable drivers and the wait for Service Pack 1 (due this summer).

### 2. BEWARE OF THE POLITICS.

Windows 2000 creates a new distribution of power inside the enterprise. Active Directory and group policies help provide more power to central IT departments and less to business units and branch offices.

KATHRIN MILLER

The political problems start in what is generally the first phase of a Windows 2000 rollout: the creation of an Active Directory tree. This tree structure is the basis for the computing infrastructure, security, desktop management and all kinds of future directory-enabled applications. It requires input from all business units.

"We're seeing companies get gridlocked in debate," says Barry Hutt, director of Dell Computer Corp.'s consulting arm in Round Rock, Texas, which has helped 30 companies migrate to Windows 2000.

"The most important thing to do is get a clear vision of what your business is, before you even start," says Diana Beecher, CIO at Travelers Property Casualty Corp. in Hartford, Conn. The company is on its way to converting 22,000 workstations and 1,500 servers by the end of next year.

> If [a few technical glitches are] the biggest [problems] so far, I'm very happy.
>
> **SCOTT NEWTON (ABOVE), SENIOR TECHNICAL ARCHITECT, OTIS SPUNKMEYER INC.**

For a large enterprise, coming up with an Active Directory structure alone can take at least nine months, says Silver. Putting an outsider in charge of creating the Active Directory structure can help "take the politics out of it," he says.

### 3. LOCK DOWN DESKTOPS.

The politics don't end there. For instance, wresting control of a company's domain name server from the Unix department (where it often resides) and assigning it to the Active Directory team has been a thorny issue for some.

Even more tricky is using Windows 2000 group policies to centrally control desktops — often referred to as "locking down" desktops. This is the only way to control total cost of ownership for Windows 2000 workstations, say project managers.

"A few users don't like it," says Christopher Smith, CIO at HomeLife Furniture Corp., which is completing its spin-off from retailer Sears, Roebuck and Co. in Hoffman Estates, Ill. "We just say, 'We're sorry, but it's not your machine; it's our machine.' "

Smith rolled out Windows 2000 to 150 users in HomeLife's Hoffman Estates headquarters in January. He's now gradually upgrading 2,000 more users in the company's 135 stores nationwide.

Although he has a 17-person IT staff, Smith says he's confident he can administer the network with just two people. To reach that goal, Smith took away users' rights to browse the internal network, install applications or access the DOS prompt.

HomeLife's end users will soon have to read and sign a security and access policy that explains why their desktops are being locked down. Explaining those reasons to users is paramount, says Beecher.

And there's been a positive surprise: End users often don't require training in order to move from Windows 95 or Windows NT 4.0 to Windows 2000. Otis Spunkmeyer didn't give end users any formal training, yet Newton says he has already seen a 40% drop in help desk calls.

### 4. KNOW WHY YOU'RE MOVING.

Many of the early movers to Windows 2000 share a common goal: They had a pressing reason to opt for the untested operating system. For Otis Spunkmeyer, the reason was simple: The existing network was highly unstable, so "I bulldozed everything," Newton says.

According to Ed Sammis, vice president of enterprise services for Microsoft technologies at IBM Global Services, more early movers should take the time to formally document total-cost-of-ownership goals to establish a sound business reason to migrate.

### 5. PLAN ALL ASPECTS OF THE MIGRATION.

"Meticulous, detailed planning" is the secret to Travelers' successful migration thus far, says Beecher. Travelers fine-tuned its migration scenarios for several months in an environment that simulated typical business tasks. ▶

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KRAFT FOODS' Tom Zavos says that thanks to his business experience, "I can stay close to IT, but if an opportunity comes up in a business function, I'm better prepared for it"

MARC BERLOW

# The Evolving IT Worker

Your key technology workers may soon not come from IT at all, as managers rethink where they look for new talent. It's the critical need for both business and technology skills that has many IT pros on the ropes, fighting off business peers for choice IT jobs.

By Sharon Watson

DON'T CALL TOM ZAVOS AN IT GUY. "I'm a business professional with IT expertise," he says.

Zavos is the business systems manager at Kraft Foods Inc.'s sales and customer service division in Northfield, Ill. He's responsible for Kraft Plus EZ-Serv, a major electronic-business initiative providing information to Kraft's trade customers via the Web.

Zavos aligns system requirements with business strategies, manages project time lines, makes presentations to business executives and leads an application development team. "My responsibility is to know our business and where we want it to go and translate those goals into technical plans," he says.

That mix of business and information technology responsibilities also makes Zavos a perfect example of the emerging IT professional for the New Economy: He has strong business skills, he's a smooth communicator and he's still well versed in technology.

"As product life cycles shrink, technology has an enormous impact," says Yash Gupta, dean of the University of Washington Business School in Seattle. "How do we evaluate [research and development], make investments, manage suppliers and our markets [and] the manufacturing process, create ROI plus shareholder value? Technology is the factor that ties all these together."

"For the first time, the IT organization can have a truly large impact on the business — but we must have the business perspective to make the connection between us and the rest of the organization," says

Steve Finnerty, senior vice president and CIO at Kraft.

For example, Finnerty says, Kraft's IT organization had a "strong catalytic role" in shaping how the company's senior business leaders approached electronic business. "We were creating a business strategy, not a systems strategy," he says.

As IT becomes strategic, the lines between IT, marketing and business development are blurring quickly, creating more opportunities — and challenges — for IT professionals.

"In the old days, you wouldn't see new products launched from IT," says Kathy Britain White, CIO at Cardinal Health Inc. in Columbus, Ohio. "The opportunity to be creative, to present ideas to business and marketing, is a new aspect for IT."

To be part of product and business development, IT professionals need great team skills, say CIOs. As organizations become more fluid, employees in all disciplines will join teams on specific projects, then disband, shuffle and form new teams for other projects. So IT professionals will work closely with many different supervisors and users.

For their part, CIOs will need to be flexible to retain IT professionals with strong business skills that could open doors outside of IT. "I want to keep good people in the company, even if they go to a different division," says Dave Zitur, CIO and vice president of finance at Carlson Leisure Group in Minneapolis. "But that is a challenge as a manager."

Kraft has built that kind of fluidity into its IT career track through its Leadership Program, which pairs experienced IT employees with business executives as mentors, and by encouraging IT staffers to work directly within business units. Zavos says this approach gives him lots of career flexibility. "I can stay close to IT, but if an opportunity comes up in a business function, I'm better prepared for it," he says.

Those opportunities will be far fewer for IT professionals — and IT organizations — short on business talent, even if their technical skills are strong. That may not be fair, but as Finnerty says, "It just is" — and that may be the first business lesson the new IT worker needs to learn.

## The Shifting Supply of IT Workers

What does the need for multidisciplined professionals in IT mean to you? For starters, you may see a surprising amount of competition for your job sooner than you might expect.

With today's IT talent pool looking more like a rapidly drying puddle and the need for business skills growing, many companies say they've started looking outside traditional sources for talent to fill IT positions that include business responsibilities.

Some CIOs say they already expect to train liberal arts and other graduates who show technical aptitude. "We'll probably have to go outside technology and business paths to find people with the analytical and quantitative skills we need," says Davor Grgic, vice president of corporate information systems at Kohler Co. in Kohler, Wis.

Some companies are fostering IT/business hybrid professionals internally. MarchFirst Inc., a consultancy in Chicago, provides a Web-based learning portal for its 8,500 employees. About 600 log in daily to register for courses or to assess their career skills, says Sue Reardon, the company's chief learning officer.

Some companies are turning to their users for business skills injections. At Kohler, business and IT professionals worked next to each other for 18 months on the company's SAP implementation. Now, certain skilled business users actually design and create applications for the enterprise resource planning system, while IT does final testing and integration.

In some cases, such power users are getting hired as technology experts. Cascade Consulting Inc. in Issaquah, Wash., hired skilled users of popular telecommunications billing and switch provisioning software for a data entry project at $12 per hour. Now those employees have all left for positions averaging $120,000 in annual salaries, says Rex Eads, president and CEO of the placement firm.

Meanwhile, the nation's business schools are rebuilding MBA programs with technology as a core business strategy. Graduates of these new programs may be potent competition. And enrollments in MIS degree programs, which stress a combined business and technology curriculum, have doubled or tripled at many colleges and universities.

"If you can write code, understand the technology and manage it, you're a hot commodity," says Ranjay Gulati, associate professor and director of the Center for Research on Technical Innovation and E-Commerce at Northwestern University's Kellogg Graduate School of Management in Evanston, Ill.

How hot? Eads says he pays consultants with strong technical and business skills salaries ranging from $90,000 to $175,000.

The bottom line: A wave of new-style IT professionals is starting to build. If you don't develop business skills to complement your technical abilities, that swell might just sweep you away.

## Dot-Coms, E-Commerce and Changing IT Professionals

Hoping to join the dot-com and e-commerce gold rush? If you think your technical skills are the only pick and shovel you'll need, you may find yourself chasing fool's gold.

"We each need to wear 12 hats here," says Eric Tagliere, director of e-commerce at EthnicGrocer.com Inc. in Chicago.

> I'd rather take someone with the energy and enthusiasm to learn than to re-engineer a techie to be self-operating.
>
> ERIC TAGLIERE, DIRECTOR OF E-COMMERCE, ETHNICGROCER.COM INC.

Tagliere says he has turned down good programmers who couldn't interact with business people or show an ability to think about how technical decisions made today could affect the business three months from now. Instead, he hires communications and English majors and others who seem to have technical aptitude if not a B.S. in computer science.

"I'd rather take someone with the energy and enthusiasm to learn than to re-engineer a techie to be self-operating," Tagliere says.

That's the bottom line at dot-coms and, to some extent, at other businesses launching e-commerce ventures. In e-commerce, where technology is the product, CIOs say even database administrators need sharp business and communication skills.

"We're looking for technology strategists, not technology gods," says Raji Shankar, co-founder and director of marketing at Stars and Stripes Omnimedia Inc., a military multimedia Web content provider in Pittsburgh. His firm tends to hire MBAs with IT concentrations.

Customers are one powerful force behind the need for multidisciplined IT folk in the electronic-business world. Whether designing an extranet for trade customers or back-end systems for fulfilling Thai fish-paste orders, e-commerce IT professionals are creating systems directly for paying customers — an audience that's new to many IT departments.

"The customer's experience of the technology will be the major component of the customer's experience with the firm," says Maryam Alavi, the John M. Cook chairwoman of information strategy at Emory University's Goizueta Business School in Atlanta. "Technologists will need to see things through customers' eyes."

That's another reason why business-inept techies need not apply for dot-com jobs, says John Petrone, chief technology officer at online bookseller Alibris Inc. in Emeryville, Calif. "What IT produces is now so core that it is the business," he says. "You can't afford to hire people who are completely isolated from customers."

And with everyone required to share duties and decision-making, dot-coms can't afford technical prima donnas. "If you find cross-dimensional people, they can solve business problems," says Mark Skalski, CIO at EthnicGrocer.com. "They'll help grow the rest of the IT staff too." ◗

*Watson is a freelance writer in Chicago.*

# Evolutionary Survival

Thought all you had to do was keep up on ColdFusion, XML and every other hot new technology to ensure your career's success?

Well, from old-line brick-and-mortars to dot-com debutantes, CIOs say that although technical skills are still important, solid business and communication skills are needed, too.

What's a techhead to do? A lot – if you want the best promotions and good money. Here's what peers suggest:

- Learn all you can about your company and its industry. Spend a day or two in key functional areas, from customer service to the warehouse, to see how they operate. Understand how the systems you support affect the business.
- Use any mentoring or educational programs your company offers. Many "traditional" companies that can't offer the glitz and glamour of dot-coms have created career development paths to attract and retain IT talent.
- Build teamwork skills and be prepared to work closely with users as development partners.
- If management is your goal, consider one of the new MBAs with a specialization in technology and/or electronic-business management.
- Change jobs if your company won't let you out of IT to build business skills. – *Sharon Watson*

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SEARS CIO JERRY MILLER says, "It's absolutely vital to the success of any IT organization to make sure that you train your people"

DAVID JOEL

# Tailoring Leadership Strategies

WHO IS HE?

Sears, Roebuck CIO **Jerry Miller,** 53, is a 20-year IT veteran who has worked at the venerable retailer for the past six years, taking over as CIO a year and a half ago.

*As a football player in college, Jerry Miller learned some basic leadership skills that he says have served as a solid foundation throughout his 20-year career in information technology.*

*Now, as senior vice president and CIO at Hoffman Estates, Ill.-based Sears, Roebuck and Co., Miller is responsible for the professional growth of the company's 1,700 IT employees.*

*In a recent interview with* Computerworld's **Melissa Solomon,** *Miller talked about some of his strategies and practices for recognizing, encouraging and developing new leaders within Sears and discussed the key ingredients of leadership training.*

**How critical are leadership-development programs in IT?** It's absolutely vital to the success of any IT organization to make sure that you train your people . . . and you have a good pipeline of talent coming up through the ranks.

**Do you have any examples of a leadership development course that really paid off?** We sent people to [the College of] William and Mary, and that course was about . . . five or six days . . . and it really taught the people how to win in retail. We had another, a similar course [at Northwestern University], and it was on financial management. And again, [with] people coming back from that course, we've been able to see that they approached budgeting, expense control, a little differently.

**Do you find that there's a steep learning curve for IT staff who may have the technical skills down but not much experience with business and management?** Most of the people coming up in IT have a number of avenues available to them to sharpen their technical skills. And as managers reach higher levels of management, it's not so much their technical skills that they have to pull from, but it's their . . . interpersonal skills and their business knowledge.

If they're strictly a technician, they're not going to be able to . . . decide what technology is needed if they don't understand how the business works.

**What do you think is a good length of time for a leadership-development course?** It depends on the course, but I think you can learn what's relevant to your job in a day or two. Hit the high points — that's all you're going to remember anyway.

**How much time do you spend on leadership development?** We have performance reviews twice a year with all of our people . . . and have a good discussion . . . about their career path plan. . . . We [also] have, for all of the managers, what is called a 360 review, where [employees, managers and peers] have an opportunity to critique the manager.

And then, anywhere from four to six times a year, I meet with my immediate staff. . . . Once a year, I have a meeting with the chairman of the board, the CEO of the company, to go over our management ranks and what we're doing to train the managers, what managers do we have ready for promotion [or] ready for a challenging assignment. Who are our upcoming superstars?

**What type of training do you offer those upcoming superstars?** We have what we call our Sears University. And it is top-notch classes on a number of things, both technical as well as general leadership skills. . . . We also have outside courses that we put our managers through — presentation skills, courses on the retail industry. We sent some people to the Society of Information Management Learning Forum, which is a very extensive nine-month course, where the person has to read 40 books. It's two days a month for about nine months.

**Is it up to employees to choose their own training programs?** It really is done mutually between the manager and the manager's manager. . . . We encourage all of our managers to take ownership in their self-development. And that's also kind of a skill or a quality that we look for in our future leaders — is their willingness to improve themselves.

**What other skills do you look for in leaders?** We rate all of our people in areas of integrity, diversity, innovation. I mentioned development, and that's not only self-development, but it's also in how well the manager develops their people. Another area is building relationships. Another one would be customer satisfaction. Another one would be ownership [of initiatives]. . . . Another one would be business competency. And then, of course, the last one would be teamwork. ◗

# Jobs That Dreams Are Made Of

**What makes for the perfect IT job? Tons of money and stock options? Lots of time off and flexible schedules? Unlimited training? Yes! And more, according to respondents to our recent query about the perfect IT job. By Holly Hubbard Preston**

EVER WONDERED what the dream job in information technology would be? We were a bit curious ourselves and posed the question to our readers. In an unscientific poll conducted recently on the *Computerworld* Web site, we asked readers to tell us about their dream jobs, half expecting a grocery list of dot-com stock-option plans and bonus programs. What we got instead was shocking, if not just a little refreshing.

We heard from approximately 200 of our online readers who wrote in with their definitions of a dream job. Surprisingly, few of those readers even mentioned money. That's approximately the same number of folks who dreamed of jobs that allowed for telecommuting. The comments provide invaluable insight for IT managers struggling with keeping staff turnover low and productivity high.

The bottom line: Attracting and keeping workers can be a relatively straightforward proposition. The key is understanding what motivates them. The big mistake many IT managers seem to make is placing too much emphasis on salary and options alone. Sure, those two things can play a big role in attracting an employee, but they may not be enough to keep him at your side over the long haul.

Take a look at your rank and file and consider why they leave. As one of our readers noted, so much money is being thrown at prospective new hires that big salaries and options are considered par for the course. IT workers are starting to expect selling points that sit outside the shadow of the dollar sign.

The broad majority of our readers described their dream jobs as nothing less than a good corporate environment, with employers who support a solid work/home balance. Consider the respondent who prioritized his dream job as a place "willing to accept change as the rule, invest in [its] people" and help provide "balance between home and work life."

## Let There Be Light

Granted, managers won't always be able to comply with the dream wishes of their workers. Still, a little bit of effort, along with some empathy, goes a long way. Managers might find that what their employees want isn't such a stretch to provide.

We asked human resources expert Lynn Novo to analyze our readers' aspirations. Her conclusion: IT employees across the board are feeling frustrated these days, not necessarily because of low pay but because of the low self-esteem that comes from feeling unchallenged, unbalanced or underappreciated.

Novo, director of business services at Netsysco LLC in Louisville, Ky., provides consulting services on human resources and strategy issues for IT organizations. Her firm recently surveyed 200 system administrators across the U.S., asking which would be their highest priority for changing jobs: more money, flexible time/more time off, more technical challenges or a better corporate environment. A better corporate environment won hands down, Novo says.

"System administrators told us they wanted enlightened management who didn't overmanage, overwork and underappreciate them," said Novo.

Many employers are missing the boat in terms of reading what their employees want, Novo says. "Their job demands that they keep abreast of the technology and continually learn new things, yet many system administrators tell me that they have to fight to get the training they need," says Novo.

Training. Telecommuting. Respect. Flexibility. Doesn't sound like IT workers are asking for a lot in the grand scheme of things. The following readers' comments demonstrate this loud and clear. Though some were edited for length, you can get a good sense of what dream jobs are made of — imagined and real.

## What Dream Jobs Are Made Of

"Working in a shop where I was able to develop Web enabled/based applications to replace all existing desktop applications. This would be done in a work environment where the availability of tools wasn't limited to Microsoft-standard tools only and has flexible work hours, projects would be more single-threaded. Business casual attire and a great work area/cubicle/office, with few restraints on our ability to [be] comfortable."

"High salary, stock options, signing bonuses, latest technology, bring your dog to work."

"Low stress; flexible hours; telecommuting; fully supported, clearly defined business goals; and consistent direction from the top; latest technology; development environment with good communication with customers; up-to-date environment; sufficient training, good pay and benefits."

"My dream job would be where I can test and develop new technologies, especially in the security area."

"Good pay . . . good benefits . . . telecommuting two to three days a week, respect for myself and colleagues."

"One that pays well but also allows me somewhat of a personal life."

## R.E.S.P.E.C.T.

"One that gives me empowerment, recognizes and rewards my achievements. One that shows appreciation for my hard work by sending me to training, seminars, etc. to enhance my professional knowledge."

"Doing what I do now — working as a database administrator from the application to the system administration level — but with more recognition and control of direction."

## Constant Learning

"It needs to be a moving target. If I wasn't learning new things, updating skills in this field, I [would] feel I am being left behind."

"A place [where] you could continually learn without burning out."

"Where educational opportunities exist to broaden the scope of problem-solving skills. One that rewards its employees [not] just monetarily, but through additional challenge and responsibility."

## No Place Like Home

"Ah, only that I could work from home. Working in my pajamas. Right now I do too much tech support, so it's impossible."

"I'd like to be able to work from home — no matter where I decide home should be — and determine my work schedule." ◗

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*Preston is a freelance writer in Helena, Calif.*

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# Business Intelligence

BY CHRISTINE McGEEVER

COMPANIES USE a wide range of technologies and products to generate what's known as business intelligence (BI).

The most common tools — simple query and reporting, online analytical processing, statistical analysis, forecasting and data mining — can be used in a variety of ways.

Applications can provide ad hoc access to a single piece of data, such as monthly sales figures (see box). Or they can be mission-critical, Web-enabled engines used to drive business processes. The goal is to turn what are often mountains of data into useful information. The common platform to achieve this is the database.

Actually, a refined aggregation of multiple databases, called a data warehouse, is the best source for BI. Data selected for use in the warehouse is reformatted and stored in a process called extraction, translation and loading (ETL). The process standardizes the various data structures so they can be accessed and analyzed with high accuracy.

With a rich, aggregated data source, BI applications and utilities can be used to forecast business conditions, improve operational efficiencies and manage supply chains. BI has been applied most commonly to customer relationship management (CRM), enabling analysis of customer behavior and market segmentation.

## Managing Information

But traditional tools go only so far. Wayne Eckerson, director of education and research at the Data Warehousing Institute in Bethesda, Md., says data warehousing is the infrastructure used to support a lot of BI applications today. "We used to manage the technology" that gathered and stored the data, rather than managing the information the data provided, says Eckerson. That focus has changed in response to the Internet, Eckerson says, and vendors of traditional CRM and enterprise resource planning applications, as well as vendors of relational databases, are embedding BI utilities and tools in their products.

DEFINITION

**Business intelligence** refers to the type of granular information that line-of-business managers seek as they analyze sales trends, customer buying habits and other key performance metrics of an organization.

"Now you get more dynamic access to information that was formerly static," Eckerson says, adding that firms can use the Internet to deploy this information to thousands of users in any location, rather than a select few in headquarters.

Using the Web to distribute business intelligence is the approach Pfizer Inc. is taking, says Lawrence Bell, senior manager of the New York-based company's U.S. pharmaceutical information architecture team. Pfizer's global, distributed operation simply couldn't work out of one monolithic warehouse that had to distribute information about regional sales trends to sales and marketing professionals.

To deal with those challenges, Pfizer began using Informix Corp.'s ETL tool, Ardent Datastage, to create a distributed database running on hubs around the world that could be updated quickly and accurately on demand.

Pfizer uses a Datastage utility to allow replication on the fly using the Internet's file transfer protocol so the system can support frequent updates. The system is used to deliver volumes of data that Pfizer "feeds downstream" to marketing and sales divisions worldwide to help them evaluate product sales and trends.

Along with the standard business data sources, BI applications also let firms add nontraditional data sources. The Dallas Teachers Credit Union (DTCU), for example, used geographical data analysis — which draws information about the physical location of bank customers or prospective customers — to increase its customer base from 250,000 professional educators to 3.5 million potential customers — virtually overnight [Technology, June 12].

The increase gave the credit union the ability to compete with larger banks that had a strong presence in Dallas.

"We're now competitive with Wells Fargo and [Bank of America]," says DTCU Senior Vice President and CIO Jerry Thompson. "We're even, if not ahead, of the big guys." The sudden access to a whole new market came from geographical data the DTCU used to find ways to improve its position.

The DTCU needed to increase its customer base to remain competitive. Changing its status from a profession-based service to a community-based service would do the trick, but such a change would require approval from the Texas State Credit Union Commission.

The DTCU needed to whip up a business plan and proposal to present to the commission. And much of the data in that proposal would have to reflect the credit union's detailed knowledge of the community's banking habits.

As a first step toward gathering the information it needed for the proposal, the credit union replaced a financial system with BI applications running on IBM's DB2 Universal Database. Then it bought supplementary data compiled by Acxiom Corp. in Little Rock, Ark., to correlate credit scores, lifestyle statistics and locations of residents in the credit union's area.

## Identifying Sources of Profit

Using geographical analysis and spatial mapping applications, the credit union identified the 10% of its customers who generate the most profits. It also identified customers' willingness to drive to a branch to do business by correlating customer locations with branch locations and the time it takes to drive the distance between the two.

The DTCU submitted its proposal to the commission as a graphical representation of its current and proposed customers and current and proposed branches and automated teller machines, along with detailed analysis of the impact of the membership change.

The commission usually takes months to approve such modifications and usually requests additional information, says Thompson. But the commission approved the DTCU's request in less than a month based on the proposal it submitted — with no additional questions. The final approval came through in late May.

Now the credit union can use the geographical data to focus its marketing efforts on those 3.5 million potential customers, Thompson says.

## EXAMPLES OF BUSINESS INTELLIGENCE

**A hotel franchise uses BI analytical applications to compile statistics** on average occupancy and average room rate to determine revenue generated per room. It also gathers statistics on market share and data from customer surveys from each hotel to determine its competitive position in various markets. Such trends can be analyzed year by year, month by month and day by day, giving the corporation a picture of how each individual hotel is faring.

**A bank bridges a legacy database with departmental databases,** giving branch managers and other users access to BI applications to determine who the most profitable customers are or which customers they should try to cross-sell new products to. The use of these tools frees information technology staff from the task of generating analytical reports for the departments and it gives department personnel autonomous access to a richer data source.

**A telecommunications company maintains a multiterabyte decision-**support data warehouse and uses business intelligence tools and utilities to let users access the data they need without giving them carte blanche to access hundreds of thousands of mission-critical records. The tools set boundaries around the data that users can access, creating data "cubes" that contain only the information that's relevant to a particular user or group of users.

■ *Are there business terms you would like to learn about in QuickStudy? Please send your ideas to quickstudy@computerworld.com.*

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JOE AUER/DRIVING THE DEAL

# Fee ploy backfires in supplier's face

DURING RECENT NEGOTIATIONS for a lower rate with a professional services supplier, a customer faced this ploy: The supplier said, "If we lower our fee, we can't give you our best consultants." This immediately conjured up all kinds of thoughts in the customer's mind. He responded, "How much are your worst consultants? What about your mediocre consultants? What kind of deal can we get on them? Can I have a combo platter? Some of your best with a few mediocre ones?" The questions changed the dynamics of the discussion and pointed out how absurd the supplier's statement was. It also told the supplier that the customer wasn't about to fall for this line.

The resulting laughter set the stage for serious negotiations on the real issues. (Accepting the explanation would have allowed the supplier to maximize its profits on the customer's business.)

What do you do in a case like this? First, remind the supplier that you want the services of qualified consultants, not necessarily the most expensive. Then, tell the supplier that you're testing the marketplace for skills and rates. Finally, stress that the rate you agree to should decrease as the business you do with the supplier increases.

These reminders should refocus the supplier's attention on winning the business. If the supplier continues to balk, then it's time to talk to another supplier because this one is interested only in maximizing profits, not helping you apply the most cost-effective resources for a particular job.

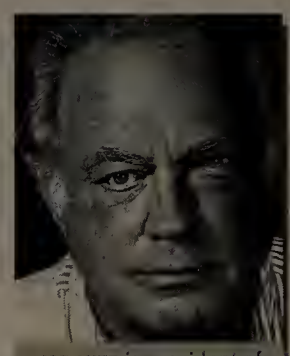
Then, re-emphasize the skill sets you're interested in obtaining (such as project management, development, database administration), the number of such skilled people you'll need and when you'll need them. Discussing the skills in detail on a line-item basis by fully detailing your expectations for a given project, function or task will shift the focus to the specific skills required. Individual rates can then be discussed because the skill-set differences for your set of expectations have been identified, and different skills should carry different prices.

This approach counters a "one size fits all at the highest rate" pricing strategy that many suppliers impose. If you're negotiating with a niche provider that has only one set of skills, this strategy may be more difficult to use because you're negotiating in an area with less competition.

But it's worth the time to explore and probe. Even within a niche provider, there is various experience. It can be argued that less experience justifies lower rates. But don't be oversold. Remember, you don't get what you don't ask for.

## Mail Bag

Spyros Kosmetatos, IT director at Aircond Corp. in Smyrna, Ga., wrote in about my May 29 column, "Customer's Silence Yields Better Deal." The column was about how growing dependence on a supplier, its ownership of technology assets, software licensing and such helps it leverage a better deal for itself.



**JOE AUER** is president of International Computer Negotiations Inc. (*www.dobetterdeals.com*), a Winter Park, Fla., consultancy that educates users on high-tech procurement. ICN sponsors CAUCUS: The Association of High-Tech Acquisition Professionals. Contact him at joea@dobetterdeals.com.

He asks: "Isn't this exactly what the ASP industry is attempting to do to us through outsourcing everything to them? At what point (holding all the cards, connectivity, support, software licensing, hardware costs, staff) do they then feel strong enough to start dictating the terms?

"What is the start-up time and cost in producing hardware, software, human resources and the existing infrastructure to bring services back in-house after a falling out with an ASP? For most companies, this is a one-way migration, and they would just have to suck it up and pay what the ASPs will demand.

"What are we truly doing to ourselves in adapting this business model for our IT services?"

Well, Spyros, you've got it! The vendors' mantra for their sales and account managers is: account control, account control, account control. Thanks so much for your excellent observation. There's more need now in outsourcing-type transactions to ensure that we negotiate a rational "path back" into the contract.

This is easier said than done, as every facet of the deal is touched by the unwinding process needed to get the function or application back in-house and intact. I've worked with "stuck" outsourcing customers who had no path back — and it's not pretty. ◗

# BRIEFS

## Fidelity Uses Verizon For Wireless Trading

Fidelity Investments in Boston announced that it has formed an alliance with Verizon Wireless in Bedminster, N.J., to deliver Fidelity's InstantBroker wireless trading service via Web-enabled phones. Fidelity developed the service with two-way pagers and other handheld devices in November 1998.

## Study: ASPs to Boom

The U.S. market for application service providers (ASP) is expected to grow from $1.1 billion to $13 billion by 2004, according to a study by The Phillips Group Inc. in Parsippany, N.J. The study also said large businesses will account for 70% of that growth. E-commerce will lead the growth, representing 52% of the ASP revenue, compared with only 28% last year. Only 4% of firms that have 500 to 100,000 employees are using ASPs, the study found, but about 70% said they will be implementing ASPs for some aspect of their organizations.

## Bill-Paying Trends

Web consumers are three times more likely to use online bill-payment services from banks than from dot-com companies, according to a study by Greenwich, Conn.-based InsightExpress LLC. The survey also asked consumers why they use online bill payment: to make last-minute payments (44%), to cut down on time spent paying bills (37%) or to avoid postage costs (32%). But consumers also reported being concerned about security (69%) and fees (60%).

## Sabre Creates B-to-B Travel Marketplace

With more than 18,000 U.S. and 41,000 worldwide travel agencies hooked up to its computer reservations systems, The Sabre Group Holdings Inc. in Fort Worth, Texas, this month launched a business-to-business marketplace for the agencies. By the middle of next month, suppliers including Office Depot Inc., Staples Inc. and Barnes & Noble Inc. will offer goods and services to every Sabre-connected U.S. agency. An international launch is scheduled for later this year.

## Banks Join Forces on Internet Services

Atlanta-based VerticalOne Corp. and Centura Banks Inc. announced a partnership aimed at extending VerticalOne's Internet-banking capabilities to Centura Banks' customers. Centura serves about 250 financial centers, offices and in-store locations. VerticalOne provides its clients with one-stop Internet banking at about 400 banks and investment firms.

## Armstrong World Outsources Portals

Building materials giant Armstrong World Industries Inc. in Lancaster, Pa., has outsourced its customer Web portals to Pleasanton, Calif.-based Intira Corp. Growth in Web site traffic spurred Armstrong to seek outside services for infrastructure expansion and support, including server provisioning, security and backups.

## Two Firms Back StorageApps

Dell Ventures and Blackstone Group LP teamed up to invest $25 million in privately held StorageApps Inc., a maker of applications and appliances for storage-based network services in Bridgewater, N.J.

Dell Ventures is a business group of Dell Computer Corp. in Round Rock, Texas. It makes investments in early-stage private companies. Blackstone Group is a private investment bank in New York.

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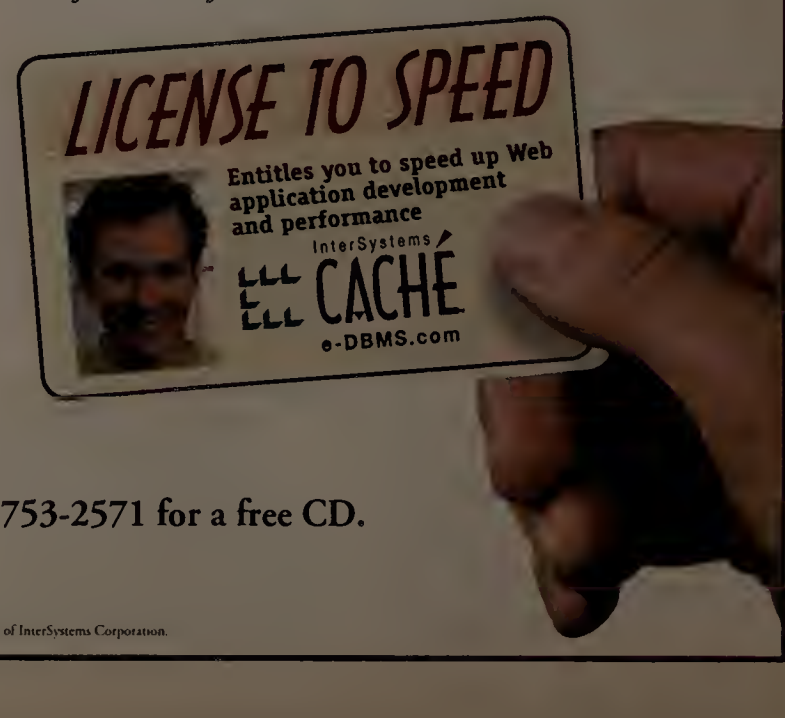


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# TECHNOLOGY



## MICROSOFT JILTS JAVA

Microsoft says that because of its Java-related court battle with Sun Microsystems, Visual J++ is being left out of its upcoming tool set for Microsoft.Net. But developers say it won't be missed. ▸ 60

## MIDDLEWARE MEDDLING

Most IT professionals have been watching the Microsoft antitrust case as if it were a spectator sport, but few have considered its possible impact on their shops. The outcome of the case could result in unexpected middleware headaches for IT, writes technology editor Robert L. Scheier. ▸ 60

## ENABLING E-SIGNATURES

As e-commerce outfits prepare for the Oct. 1 launch of legally binding digital signatures, vendors are rolling out tools and services to make it easier to deploy such signatures. ▸ 62

## HANDS ON

The Qbe Cirrus from Aqcess Technologies is a neat, full-featured pen-based tablet computer that doesn't need a keyboard. It's designed to be carried in one arm and used with input from a cord-attached stylus, voice recognition technology and a built-in digital camera. But glitches spoiled the experience for reviews editor Russell Kay. ▸ 64

## QUICKSTUDY

When Intel announced that it would recall millions of PC motherboards because of problems with a converter for RAM chips, it was a reminder of how crucial RAM is to your computer's performance. A concise *Computerworld* tutorial will tell you more. ▸ 66

## FUTURE WATCH

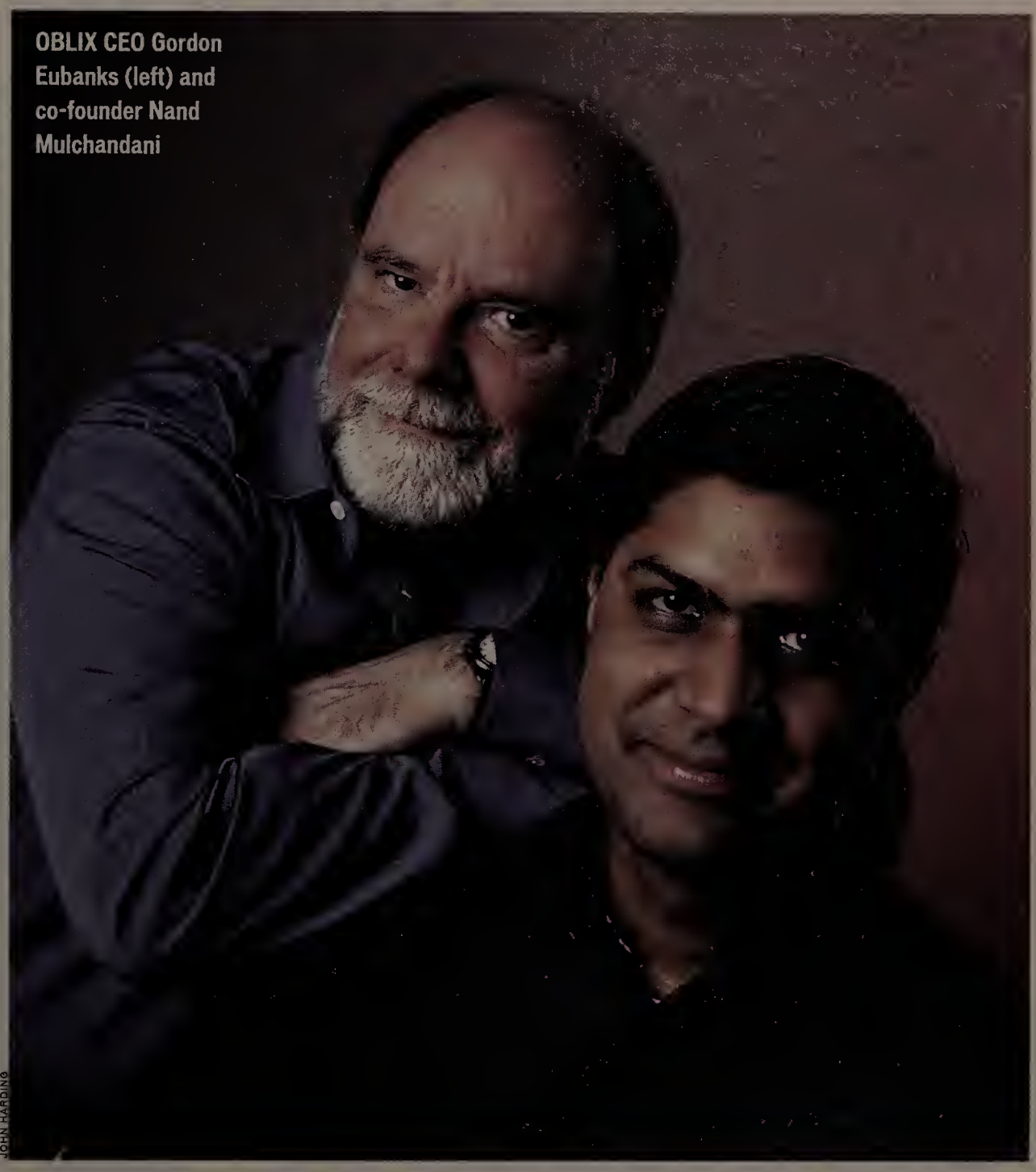
The first human tests of artificial retinas — silicon chips implanted in the eye — raise hope of an eventual cure for some of the most common types of blindness. In these tests, microscopic solar cells in an implanted chip send electrical impulses to the brain in much the same way the eye's photoreceptors do. ▸ 68

## DOUBLE BIND

Privacy tools that give users much more control over their personal data will force a change to more permission-based Web personalization in the future. In the meantime, IT professionals at Web sites find themselves caught between competing demands for security and personal service. ▸ 70

## TRENDSETTERS

For IT pros who really want a challenge and a sense of accomplishment, nothing beats starting your own company. But the risks can be huge, the pay low and the hours long. Greg Cassileth discusses lessons that he learned launching his own company. ▸ 74



OBLIX CEO Gordon Eubanks (left) and co-founder Nand Mulchandani

JOHN HARDING

# GIVING USERS THEIR RIGHTS

**SOFTWARE TOOLS** from emerging company Oblix Inc. let IT managers push the task of managing user-access permissions and profiles out to trusted users — including remote users and business partners — on corporate intranets or extranets. That takes a load off corporate IT, but setting up the tools is an effort in itself.

72

# Microsoft Leaves Visual J++ Out of .Net Tool Kit

*Developers say they won't miss tool that hasn't been updated in two years*

BY LEE COPELAND

MICROSOFT CORP. previewed a slew of tools as part of its Microsoft.Net tool set at its Professional Developers Conference in Orlando earlier this month. Visual J++ didn't make an appearance at the show or in the tools package, and developers say the development tool won't be missed.

The software vendor confirmed that because of its Java-related court battle with Sun Microsystems Inc., Visual J++ — which creates Windows-specific Java applications — was left out of the Visual Studio.Net preview. The preview included several other tools updated or designed to support the new Microsoft.Net Internet strategy that's supposed to transform applications into Web services.

Visual J++ creates Windows-specific Java applications. Java creator Sun sued and won an injunction blocking Microsoft from developing its own version of the Web programming language, but the case is still in progress.

Microsoft officials wouldn't comment on the pending case but said Visual J++ could be included in the Visual Studio.Net package of tools designed to help developers write applications for the Microsoft.Net initiative. The tool could also ship on its own, they said, depending on the outcome of the court fight with Sun.

## Dead on the Vine

"Its no surprise that Visual J++ [didn't get included]," said Sally Cusack, an analyst at International Data Corp. in Framingham, Mass. "It has not been [updated] in two years, so Microsoft let it die on the vine, so to speak."

Cusack said Visual J++ was one of the top three Java development environments two years ago, along with tools from Inprise Corp. in Scotts Valley, Calif., and Symantec Corp. in Cupertino, Calif.

Developers still use the tool, but many are looking to migrate because of the uncertainty caused by the suit, she said. Microsoft officials said the company will provide a migration path if it loses the lawsuit.

But some developers said Microsoft's Visual J++ won't be missed. "I was just saying that we should start to exploit Visual J++ [before I left], but now I am going to have to go back to the office and rescind that," said William Buckingham, an information technology architect at Royal Bank of Canada in Toronto.

Buckingham said Royal Bank uses IBM's Java tools, which are optimized to run on S/390 mainframe computers.

"We were seeing Java as more strategic on the S/390" than on Windows 2000, Buckingham said. "We are a big financial institution, and the 390 is our mother ship with the legacy stuff on it, and we really need to have true scalability there."

"Nobody used [J++]," said Kevin Dill, Internet practice lead at Software Architects Inc., a software consulting firm in Columbus, Ohio. "Our customers that wanted Java didn't like J++ because it has Windows-specific hooks." ◗

*Reporter Dominique Deckmyn contributed to this story.*

AT A GLANCE

### Excluding Visual J++

**What it is:** Microsoft's Visual J++ application development tool

**What happened:** For now, Microsoft is leaving Visual J++ out of its tool kit for the .Net initiative, which is intended to transform Windows applications into Web services

**Why:** A court ruling forbids Microsoft from developing its own version of Sun's Java

**The impact:** Some developers say Visual J++ won't be missed because most customers don't want to use a Windows-specific version of Java anyway

ROBERT L. SCHEIER

# Middleware meddling

UNTIL NOW, if you're like most IT professionals, watching the feds battle Microsoft has been a spectator sport. If you love Microsoft, you've gnashed your teeth as Judge Thomas Penfield Jackson ordered it broken in two as a lawless monopoly. If you hate Microsoft, you've cheered as an industry bully was finally brought to heel. But as a *Computerworld* survey in May showed, fewer than one in four of you said the case would affect your IT planning in the next two years.

But all this may be about to change. Last week, *Computerworld* columnist Frank Hayes [The Back Page, July 17] warned about the uncertainty that will grip Microsoft customers as it tries to implement its Microsoft.Net initiative.

Well, here's another problem, all because of a word Jackson doesn't even understand: middleware.

Middleware, simply put, is software that ties other software together. Middleware is vitally important, but it's plumbing — expensive, complicated plumbing that most users never see.

But to Jackson, everything is middleware, and in his conduct remedies (which, like the breakup order, are being appealed), he barred Microsoft from improperly tying sales of any of its middleware to sales of its other software such as applications or operating systems.

The problem is that Jackson's definition of middleware is ridiculously broad: from Web browsers (which are really thin-client user interface code) to Java (a development language) to Lotus Notes (which is client/server groupware).

## Risky Business

This is potentially devastating for Microsoft and for anyone building infrastructures around Microsoft's plans.

Who's to say that Jackson won't rule that it's illegal for Microsoft to optimize its Message Queue Server software for its Windows NT operating system? And who's to say that the judge couldn't put limits on how Microsoft's development tools support its Distributed Component Object Model protocol for linking software components over a network? What would a forceable separation of these products do to their pricing and to how Microsoft supports and improves them over time?

ROBERT L. SCHEIER is *Computerworld*'s technology editor. Contact him at robert_scheier@computerworld.com.

Then there's Microsoft.Net, Redmond's bet-the-company strategy to create a layer of software to link all of a user's devices over the Internet.

If that sounds like middleware to you, you can bet it will sound like middleware to the judge. How will Microsoft roll out .Net for corporate customers if Jackson can fine-tune how Microsoft deals with the developers who will write applications for it and the hardware vendors that will build it into their devices?

Even if you hate Microsoft, take this logic a step further. What if the feds find that Cisco has a monopoly in routers and decide it can no longer tie sales of its Internetworking Operating System to sales of its routers? Think what it would be like buying your routers and switches from Cisco, the operating systems for them from another vendor and trying to make them work together?

I don't have the answers. A start, though, might be for attorneys for Microsoft — or for major customers — to challenge Jackson's ruling on the grounds that his definition of middleware is impossibly vague, inconsistent and just plain wrong.

Even if you think we must crush Microsoft's anticompetitive practices, I predict that the hammer Jackson built could bring unforeseen — and unpleasant — consequences for corporate IT.

Am I paranoid, farsighted or both? You can let me know by visiting my forum at *http://198.112.59.4/cworld_forums/Forum15/HTML/000002.html.* ◗

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# New Digital Signature Law Prompts Vendor Scramble

BY TODD R. WEISS

Between now and October, leading e-commerce companies will be scrambling to implement digital signatures — software that provides a legally binding commitment the same way a physical signature does.

They want to be ready when nation's first federal law giving legal standing to digital signatures goes into effect Oct. 1.

And with the Electronic Signatures in Global and National Commerce Act soon to become law, companies that offer technologies that enable the use of digital signatures are scrambling to get the word out about their products, which range from stand-alone applications to services that will offer secure environments for digital signatures to be recorded.

Some vendors offer tools that will let information technology managers create their own digital signatures, while others offer services that take over the job for them.

Among the vendors in the developing field are AlphaTrust Corp. in Dallas; Silanis Technology Inc. in Montreal and Silanis unit OnSign Inc., which offers technology for home and small-business users; Entrust Technologies in Plano, Texas; and Baltimore Technologies PLC in Boston.

AlphaTrust offers a Web-based subscription service that provides a secure online environment for digital signatures to be created and used. The service is available in three levels: individual use, business use or higher-security uses such as those of banks, law offices or health care providers.

AlphaTrust, like the other products and services, uses high-level public key infrastructure (PKI) authentication and digital certificates to protect and prove the identities of users.

Prices range from $20 per year for individuals to $40 to $80 annually for each equipped business desktop.

## Personalization and Multiple Signatures

Silanis has ApproveIt, an e-commerce package that offers multisignature capabilities within documents.

ApproveIt allows users to create their own "ePersona" file to give them a unique electronic signature and identity. The system uses complex encryption, digital certificates and industry standard algorithms to ensure security. ApproveIt sells for $150 per desktop and is also available through an enterprise license.

OnSign's consumer-oriented application can be downloaded for free. Signatures can be captured through an electronic pad or via a fax-back service that allows OnSign.com to digitize a user's signature. The signature's image is then

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—Keith Foster, PC LAN Engineer,
Wells Fargo Services Co.

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# BRIEFS

## Hewlett-Packard Introduces Yahoo-Based Portal Service

Hewlett-Packard Co. last week introduced HP E-services Portal, which is based on Yahoo Inc.'s My Yahoo interface. The portal technology allows companies to provide employees with targeted Internet, intranet and extranet content.

The service builds on a partnership with Santa Clara, Calif.-based Yahoo that HP announced last August. Paris-based Cap Gemini Ernst & Young will provide integration services for the HP E-services Portal.

San Francisco-based Autonomy Inc., a knowledge management software vendor, will provide its Portal-in-a-Box suite of products for simplifying the presentation and delivery of information.

*www.hp.com*
*www.yahoo.com*

## ELease Automates Lease Underwriting Service

ELease Financial Services Inc., a Sunnyvale, Calif.-based Internet start-up, this week will introduce InOffice, a workflow service for automating the lease underwriting process.

The service automates manual processes such as lease initiation, lease management, lease restructuring, invoicing, collections and financial reporting. The LeaseTrack service allows managers to track active lease status, lease profiles and available lease lines. The service builds on eLease's existing AccessPoint and SalePoint leasing software.

ELease will offer the service on a hosted, outsourced basis.

*www.elease.com*

## Veritas Software Launches First Phase of SAN Suite

Veritas Software Corp. has announced the first phase of its Exchange Initiative, a program that focuses on backup and recovery, replication, disk management and storage-area network (SAN) management.

The company introduced the Exchange Protection Suite for Workgroups, bundling Backup Exec for Windows NT and Windows 2000 with Remote Storage for Microsoft Exchange. The suite is available for $5,995.

*www.veritas.com*

## Exabyte to Launch Tape Library for Networks

Exabyte Corp. in Boulder, Colo., has announced the 430 tape library for network backup and restoration, remote storage and automated archiving.

It will hold up to four Mammoth-2 tape drives and 30 data cartridges, deliver up to 1.8 terabytes of capacity and 173G bytes/hour of data throughput.

The library was designed for midrange departmental and workgroup environments. It

## Using Digital Signatures

*Some of the software products available to incorporate digital signatures into contracts and other documents include the following:*

| VENDOR | PRODUCT | TARGET MARKET |
|---|---|---|
| AlphaTrust Corp. | Personal digital ID | Consumer and personal business use |
| | Professional digital ID | E-commerce, business use |
| | Global Trader digital ID | E-commerce, individuals or organizations with higher security needs |
| Entrust Technologies Inc. | Entrust/TruePass | E-commerce, business use |
| OnSign Inc. | OnSign | Personal and small business use (free download and use) |
| Silanis Technology Inc. | ApproveIt | E-commerce, business, government, other organizations |

encoded to make it unique to the user.

Entrust's TruePass is a new Web-based digital signature delivery service that provides digital safeguards, including certificates and PKI authentication for users. The average price of TruePass is $20 per desktop, while the average price of the related PKI 5.0 application is $32 per user.

Baltimore's UniCert also uses digital certificates and PKI technologies.

It works with standard Web browsers and mail clients.

Deployment costs range from about $70,000 to $250,000 per company.

James Eaton, a network security specialist at Chevron Canada Ltd. in Vancouver, British Columbia, said he is pleased with Entrust's PKI applications, which he has used for about three years to secure e-mail and other communications.

TruePass will make it easy and cost-effective to incorporate more widespread digital signature use, Eaton said, because it will have to be installed only on a central server and not on the desktops of users and customers.

George Copeland, a senior software developer at Vectrix Corp. in Dallas, an electronic-business service provider, uses AlphaTrust's high-level Global Trader subscription services. He said he's very satisfied with the service. Vectrix also uses AlphaTrust encryption in its JetPay.com payment processing business, which requires high security to maintain user confidence. "It's worked out tremendously," he said.

will be available next month for $20,000.
*www.exabyte.com*

## Cisco, Oracle Connect For CRM Package

Cisco Systems Inc. in San Jose is rigging its customer contact and voice over IP communications software to hook up with the customer relationship management (CRM) functions in Oracle Corp.'s E-Business Suite 11i, according to a joint announcement made by the companies. Integration of the two technologies will provide computer telephony functions for large companies that use software from Oracle and will enable those companies to create call and customer support centers over IP networks, officials said.

A Cisco spokeswoman said the call center and CRM offerings from Cisco and Oracle will be separate, as they are now, but the companies will team up on integration for large projects. She also noted that this isn't an exclusive deal and that Cisco will likely pursue similar relationships with other CRM and enterprise management software vendors.
*www.cisco.com*
*www.oracle.com*

## POINT-AND-CLICK PASSWORDS

It's next to impossible to get users to come up with new passwords every month. What if all they had to do was "mix" drinks by clicking and dragging bottles in a virtual cocktail bar? That's the idea behind v-GO Single Sign-On from Passlogix Inc. in New York.

The software, available free for download at *www.passlogix.com*, allows users to create passwords consisting of a series of mouse clicks in one of nine password windows. The windows include a hand of cards, a periodic table of elements and a room in which the user hides items such as money or jewelry.

Passlogix said the software can be used as a digital wallet, securely storing and transmitting commonly used information such as credit-card numbers.

*– Robert L. Scheier*

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—Mike Enfield,
Lead Analyst–Desktop Architecture,
Motorola Desktop Solutions

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TRIM ALONG PERIMETER TO COLLECT AND DISPLAY NEAR KEEPSAKES OF CONSIDERABLE SIGNIFICANCE.

# The Clipboard Computer

## Or is it, perhaps, the perfect PDA for the Jolly Green Giant? By Russell Kay

**QBE CIRRUS**
*Aqcess Technologies Inc.*
*www.qbenet.com*
*$4,745*

I'VE SEEN PEN-BASED tablet computers before, but the Qbe Cirrus from Irvine, Calif.-based Aqcess Technologies Inc. [Technology, Nov. 29] is the first one that really intrigued me as a computer. The Cirrus is the biggest tablet computer yet — as big and heavy as a laptop — but it's still designed to be carried in one arm and used with input from a cord-attached stylus, voice recognition technology and a built-in digital camera.

This is no limited-functionality personal digital assistant (PDA) like the Windows CE-based handheld computers typified by NEC Corp.'s MobilePro 800 and 780. No, the Cirrus is a full Windows 98 PC with a 400-MHz Pentium II processor, 128MB of RAM, a 12GB hard drive, a built-in CD-ROM drive and a 13.3-in. active-matrix touch screen. Thus it can do nearly everything your laptop can do and some things it can't do as easily.

### Ideas vs. Implementation

To simplify using it on a desktop, the system comes with a small-footprint keyboard, a mouse and a kind of easel, called a porticle, that includes ports for all the usual serial, parallel, Universal Serial Bus, external monitor and other connections. There are also Ethernet, 56K bit/sec. modem, IEEE 1394 and S-video ports on both the Cirrus and the porticle. The suggested price is $4,745.

Last fall, I gave the Cirrus an enthusiastic write-up based on seeing it at a trade show. I really like the idea behind this system, and it's been designed and implemented quite well — as far as it goes. But after actually working with it for a few days, my enthusiasm has tempered considerably. I'm having trouble deciding just what the machine is really suited for and who will want to buy it.

It has to overcome two basic problems: a $4,000-plus price tag in an era of pretty good $1,500 notebook PCs, and its 5.7-lb. weight. That's an OK weight for a laptop, but when you're carrying the unit in the crook of your elbow, it soon starts to feel as if it's gained several more pounds. The experience wears thin quickly. Aqcess claims that the Cirrus has a battery life of two and a half hours, but I sometimes got less than an hour.

In terms of ergonomics and usability, the Cirrus developers have taken on a difficult job, and while they've done fairly well, I don't think this unit is quite ready for most users.

### Functionality Needs Work

First, ergonomics. The magnesium and ABS plastic case has nicely contoured edges that make it more comfortable to hold, and the bottom corners are covered in rubber, which helps keep the unit from sliding around when it's on a desk or its porticle stand. The weight, as I've mentioned, is its chief drawback. Your arm and elbow are going to get tired really quickly, although it's kind of nice when you hold it on your lap. The touch screen is very reflective, and in an office environment with overhead fluorescents, there was a tremendous amount of glare and reflections that cut badly into screen visibility.

Usability is another area where a lot of work has been done, but a good deal more is needed. Most Windows users have become accustomed to bringing up context menus with a right mouse click, but if you're using a stylus, rather than a mouse, what then? There's a big, round button at the top of the Cirrus that was designed to function as a right click. It wouldn't work for me. A mouse-button icon on the desktop was mysterious and didn't seem to do anything except highlight different buttons on its depicted mouse. In fact, after carefully reading the user's manual that comes with the device, I was dismayed to find statement after statement about some function or feature being a known problem and not yet working. For some, possible fixes were outlined but not guaranteed to work.

The Cirrus could certainly use better documentation of its stylus operation, which ought to be intuitive. But after calibrating the stylus and screen per instructions, I still often had trouble positioning the cursor, which would be offset from the stylus by an amount great enough to impede operations and give me a different selection than I was aiming at.

### Hope Springs Eternal

All this adds up to a brave new product that I'm sure will be the answer to someone's prayers, especially where portability and alternative inputs are critical. For example, I can see it being very attractive to artists and designers or to people who use applications that involve surveys, forms or questionnaires.

For most users, though, the Cirrus needs a serious amount of further development and debugging, better instructions and a crash diet. It's got versatility that's unparalleled by any other computer, yet it sometimes seems to get in its own way.

Overall, I have to give Aqcess an A for effort but a D for implementation. There are still too many loose ends, bugs and problems to recommend this system. If only the right-click function operated properly, that would go a long way toward making the machine more customizable and suited to an individual user's needs.

But hope springs eternal. A new model — the Stratus, which weighs less than 3 lb. and costs less than $1,500 — is due this fall. If Aqcess can solve a few of the interface issues, the Stratus is bound to be a much more important product.

### MOREONLINE

For more information about specific features of the Qbe Cirrus, visit our Web site.
**www.computerworld.com/more**

# It's Not Just a Dot.Com World

## Look Beyond The Valley

If you pick up most magazines these days, whether business, technology or new economy, you'd think the only technology out there was the Internet. But Internet technology is just one of many exciting technologies that business executives need to know about.

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# Random-Access Memory

BY ALAN JOCH

DEFINITION

**Random-access memory (RAM)** refers to the chips that are used inside a PC to store instructions and data for processes that are running. Typically, these chips are located close to a CPU, and some are even built into the CPU itself. Unlike data stored on a hard disk (also a form of memory), most RAM is volatile; it requires electrical power to retain data.

MEMORY IS A lot like your health: You tend not to think about it unless there's a problem. In the case of computer memory, the problems are usually plodding system performance or applications that don't run properly.

Whether they're inside a desktop PC, a notebook computer or a high-end network server, RAM chips play the critical role of keeping the CPU efficiently fed with data or instructions from programs on the hard drive. How well the chips perform this role means the difference between a CPU that misses computing cycles and moves like a steam locomotive and a CPU that speeds along like a bullet train.

## The RDRAM Problem

The critical role that memory plays in overall system performance hit home earlier this year when Intel Corp. announced the recall of millions of PC motherboards equipped with its new 820 chip set. Originally designed to support the new direct Rambus dynamic RAM (RDRAM) memory, the 820 chips were shipped with a special converter that let the processor run synchronous dynamic RAM (SDRAM), a cheaper, more available but slower memory technology. Problems with the converter forced 820 users to endure unexpected reboots and other problems. The glitches also knocked back Intel's release schedule for its next-generation Timna CPUs, which were also designed for pairing with RDRAM. Now the CPUs probably won't ship until next year.

Intel remains committed to RDRAM for two important reasons. First, the company is a co-developer of the technology, along with Rambus Inc. in Mountain View, Calif. Second, on paper at least, RDRAM looks like the technological answer for fast memory chips that will be able to keep pace with 64-bit microprocessors such as Intel's Willamette and Merced systems, which are expected later this year.

RDRAM's speed derives from its 400-MHz memory bus. Because of the architecture's added advantage of being able to transfer data twice during each CPU clock cycle, an effective data-transfer pipeline of 800 MHz is possible. In addition, thanks to a 2-byte data channel in the RDRAM architecture, the technology can achieve peak data-transfer speeds of 1.6G bit/sec.

RDRAM faced a handful of technical and business problems even before the 820 woes surfaced. RDRAM is expensive — it costs as much as three times more than competing memory technologies. Also, RDRAM requires more motherboard real estate than other memory alternatives, making it harder to incorporate into system designs. RDRAM makers are beginning to produce the chips using 0.18-micron processes, which will help shrink die sizes.

Because of these problems, memory and PC manufacturers have been slow to adopt RDRAM and have remained dependent on other fast but less radical memory designs.

## SDRAM

Today's workhorse memory standard is SDRAM, which is designed to handle data burst rates as high as 150 MHz. "Synchronous" means the chip can march in step with the CPU's system clock, which usually means zero wait states and more efficient data retrieval. However, unlike some newer chips, SDRAM can send data to the CPU only once per clock cycle.

A revved-up version of SDRAM called double data rate, or DDR-SDRAM (and sometimes SDRAM II), overcomes the once-per-cycle handicap. It can send data to the CPU twice per clock cycle for greater processing efficiency. Current samples of DDR-SDRAM chips are running at 266 MHz. Although DDR-SDRAM is slower than RDRAM, DDR-SDRAM prices could match SDRAM's by year's end.

Prevailing economic, technical and licensing issues are keeping RDRAM and DDR-SDRAM from becoming the clear-cut successors to conventional SDRAM for high-performance computing. Nevertheless, the battle over next-generation chip technologies means fewer people are taking memory for granted anymore. ◗

*Joch is a freelance writer based in Francestown, N.H. Contact him at ajoch@monad.net.*

| CHIP SET | FULL NAME | PRIMARY APPLICATIONS; MAIN PROPONENTS | SPEED | ADVANTAGES | DISADVANTAGES |
|---|---|---|---|---|---|
| DRAM | Dynamic RAM | Older PCs with early Pentium, 486 or 386 processors | Slow | Least expensive RAM | Slow |
| SRAM | Static RAM | Cache | Three times faster than DRAM | Fast; retains data without power | Most expensive; chips are physically larger |
| EDO DRAM | Extended data output DRAM | Older PCs with Pentium CPUs | 5% to 20% faster than DRAM | Superseded by SDRAM | Slow |
| SDRAM | Synchronous DRAM | Most common main memory for PCs; wide cross section of computer memory manufacturers | Fast | Prevailing memory standard; works with a wide variety of microprocessors; economical | Slower performance than DDR-SRAM or RDRAM; transfers data once per clock cycle |
| PC100 (PC133) | SDRAM for 100-MHz (133-MHz) motherboards | PCs with faster processors (PC100 in those up to 600 MHz, PC133 in those up to 1 GHz); Intel | Faster | Meets Intel specifications | |
| DDR-SDRAM | Double data rate-SDRAM | PCs with fast CPUs; memory manufacturers and Advanced Micro Devices Inc. | Faster yet | Next-generation SDRAM; transfers data twice per clock cycle | Higher cost than conventional SDRAM; slower than RDRAM |
| RDRAM | Rambus DRAM | PCs using new Pentium III Coppermine CPUs (700 MHz and up); Rambus Inc. and Intel | Fastest | Highest-speed commercial memory; uses fast bus, 2-byte data channel | Costs up to three times more than other chip sets; large die size; low production volumes |
| Flash RAM | | BIOS, modems, also removable storage for devices such as PDAs and laptops | Fast | Retains data when powered off; can be quickly erased and rewritten | Expensive |
| FRAM | Ferro-electric RAM | Memory in small devices such as PDAs, phones and smart cards; Ramtron International Corp. | Fast | Uses very low power; retains data when powered off | Lower memory densities per chip |

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# Artificial Vision In Sight?

## Doctors have implanted the first artificial retinas, made of silicon chips, in humans. By Barbara Forster

SCIENCE FICTION, move over: Artificial vision is a step closer to medical and scientific reality. Late last month, the first artificial retinas made from silicon were implanted in the eyes of three blind patients. The trio, who had lost almost all of their vision due to retinitis pigmentosa (RP), were released from the hospital the following day.

Invented by brothers Vincent and Dr. Alan Chow, who founded Optobionics Corp. in Wheaton, Ill., the Artificial Silicon Retina (ASR) is a microchip 2mm in diameter and thinner than a single strand of human hair. The silicon wafer contains some 3,500 microscopic solar cells that convert light into electrical impulses.

Designed to replace damaged photoreceptors — the eyes' light-sensing cells, which normally convert light into electrical signals — the chip runs on ambient light without batteries or wires. The ASR was designed to be surgically implanted under the retina in a spot known as the subretinal space and to produce visual signals similar to those produced by the photoreceptor layer.

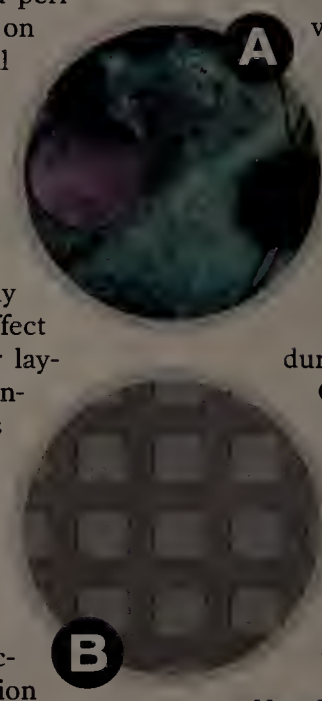
In practice, the ASR works with photoreceptors that are still functional. "If the chip can interface with functioning cells for extended periods, we're well on the way to our goal of sight," said Alan Chow.

Photoreceptor loss occurs in people with RP, which is a catch-all name for many diseases that affect the photoreceptor layer. RP includes conditions such as Usher syndrome, Leber's congenital amaurosis, Stargardt's disease and gyrate atrophy.

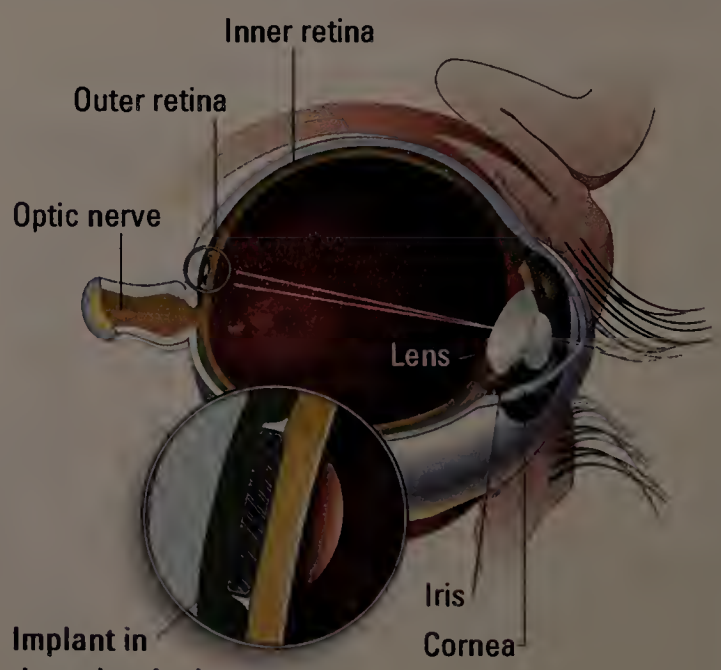
Age-related macular degeneration (AMD) is another eye condition the ASR could help, according to the Chow brothers. AMD is associated with aging, but the exact cause is still unknown. AMD and RP affect at least 30 million people and are the most common causes of untreatable blindness.

For now, the ASR can't help people with glaucoma, which involves nerve damage; diabetic eye disease with severe retinal scarring; or blindness due to stroke or other brain injuries. "At the moment, we're trying to find out if we're in the right ballpark," says Alan Chow. "Once we do that, we can modify the parameters."

**ASR implant in the subretinal space (a), and close-up of solar cells on the implanted chip (b)**




**THE ARTIFICIAL RETINA converts light into impulses that its inventors hope will travel through the optic nerve to the brain**




### Natural vs. Artificial Vision

We see in a way comparable to the way cameras work. In a camera, light rays pass through a series of lenses that focus images onto film. In a healthy eye, light rays pass through the cornea and lens, which focuses images onto the retina, a layer of light-sensing cells lining the back of the eye.

The macula is the area of the retina that receives and processes detailed images and sends them to the brain via the optic nerve. The multilayered macula provides the highest resolution for the images we see. Damage here means reduced vision: Enter the ASR.

The thousands of microscopic cells on the ASR are each connected to an electrode that converts incoming light images into impulses. These stimulate any remaining functional retinal cells and produce visual signals similar to those generated by healthy eyes. The artificial signals can then be processed and sent through the optic nerve to the brain.

In animal tests during the 1980s, the Chows stimulated the ASR with infrared light and recorded retinal response. But, since animals can't talk, exactly what happened is unknown.

### More Meaningful Results

About three years ago, the brothers had enough data to ask the Food and Drug Administration for permission to conduct human clinical trials. The first three candidates, who are 45 to 75 years old, are longtime sufferers of retinal blindness.

"We selected people with the most severe forms, so that if they achieve some degree of function, it would be more meaningful," says Alan Chow. "We're all very excited, but our biggest concern is that improper conclusions will be drawn too soon."

It will be a few weeks before specific results of the implantation can be evaluated. ASR creators stress that, at the moment, the device won't help people "see" in the way most of us take for granted.

"We'll be happy if they have light perception," said Optobionics Chief Operating Officer Larry Blankenship. "The best would be if the interface develops sufficient 'pixelization' [pixel density] so they can discern motion. Ideally, they are able to discern form or shapes."

Rejection by the body isn't a problem. "Once [the ASR is] in place, a vacuum forms over it, and that's been very predictable," says Chow. Guarded enthusiasm aside, the ASR is a monumental scientific breakthrough that could banish forever the threat of some forms of blindness. ◗

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*Forster is a freelance writer in Boston.*

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# Caught in the M

## Web sites must balance customer privacy concerns with the need for personalized information. By Jaikumar Vijayan

WEB SITES that are racing to deliver personalized content, take heed: Privacy tools that give users much more control over their personal data will force a change to more permission-based Web personalization in the future.

But a lot will depend on the kind of response the (mostly small) vendors of these privacy technologies receive from consumers in the near term, users and analysts say.

The tools — which range from anonymous e-mail and browsing software to sophisticated cookie blockers and IP-address scramblers — will increasingly let users decide how much of their personal information is made available and to whom.

If the technologies catch on, sites that want to deliver targeted content will have to be more up front about the manner in which they collect personal data and how they plan to use it, says George Nassef Jr., CIO at HotJobs.com Ltd. in New York.

"Web sites that still rely on cookies for information will need to retool and find other means of identifying their customers," he says.

Privacy technologies are gaining more attention at a time when growing online privacy concerns are casting a pall over Web personalization efforts, says Jay Ramadorai, chief technology officer at Atlanta-based LastMinute-Travel.com Inc.

His company recently completed a proprietary survey of its customers and found that a majority of them ranked personalization a much lower priority than privacy, Ramadorai says.

As a result, he says, LastMinute-Travel.com will focus its personalization "more on the really motivated customer and be more careful about who we send unsolicited e-mails to."

Web personalization refers to the ability of e-commerce sites to modify their content to match an individual's profile. Much of that profile today is built by quietly tracking a consumer's buying and surfing habits using so-called browser cookies.

Cookies — which are tiny text files that contain a user's identification — are frequently used by Web sites to recognize repeat visitors and to customize site content or services accordingly.

For instance, cookies can be used to create a personalized home page or remember shopping cart information on an e-commerce site. Cookie information, when combined with other site analysis tools, profiling systems and filtering products, lets an e-commerce site create profiles that can be used for effectively targeting content.

"It really is no different from the information-gathering that has been going on for years in the off-line world," says Mike Budowski, CEO of OurBeginning.com Inc., an online specialty stationery retailer in Orlando.

"If I don't know the demographics of the people visiting my site, I miss my entire target audience," says Budowski.

Even so, the surreptitious nature of cookies and people's fears that the information may be easily misused are fueling widespread privacy concerns.

One example is the recent public outcry that prompted Internet advertiser DoubleClick Inc. to back off from its plans to link its vast anonymous Internet user database with identifiable

information contained in the Abacus Direct off-line database. DoubleClick uses cookies to track users as they travel across multiple sites, gathering shopping information and personal preferences in the process.

Privacy-enhancing technologies are aimed at stymieing this kind of snooping while giving users the freedom to choose what information they share, says Craig McLaughlin, CEO of Privada Inc., a San Jose-based vendor of privacy software.

The firm's Privada Proxy software, for instance, gives users the ability to block or delete certain cookies or to block all cookies from sites they don't trust, McLaughlin claims.

The software allows users to privately surf the Web using fictitious identities and to send and receive e-mail that can never be traced back to them. Before the end of this year, the company hopes to have an e-commerce feature on its Web site that lets users buy goods over the Net using scrambled credit-card numbers and mailing addresses that can't be directly traced back to the buyer.

The goal of such software isn't to make users anonymous but to afford them more control over how their personal data is harvested and used, McLaughlin insists.

"Privacy need not be the very antithesis of personalization. . . . [T]he goal really is consumer choice," says McLaughlin, who plans to sell the technology to Internet service providers. Privada is just one among a horde of companies trying to tap into a market fueled by growing privacy concerns.

Consider the following examples:

■ Saratoga, Calif.-based IDcide Inc.'s Privacy Companion is a free application that works with a Web browser to help users determine when and by whom they are watched on the Net. Users can then choose whether to permit such snooping. They also can set controls on the kind of personal data that can be extracted by Web sites.

■ New York-based Youpowered Inc.'s Orby Privacy Plus client software allows users to create their own profiles listing information ranging from credit-card numbers to personal interests and hobbies. The profile is updated continuously as users traverse the Web, but it's up to the user to decide which information to make available to Web sites. The company also has Platform for Privacy Preferences-compliant server-side software that allows content providers to express their privacy practices in a standard format that can be retrieved automatically and interpreted by the Orby client software.

■ WebWasher.com AG, a subsidiary of Siemens AG in Germany, has software that lets users filter out unwanted advertising banners, pop-up windows, animated images or Java applets. Bidirectional automatic cookie filters let users block cookies from sites they dislike.

■ Zero-Knowledge Inc. in Montreal allows users to create multiple personalities (called Nyms) that can be used to browse the Web in total anonymity. The company's Freedom software ensures that any profiles and browsing history linked to a Nym can never be traced back to the real user — even by the company.

If properly used, such software can actually help foster better personalization rather than deter it, says Bonnie Lowell, CEO and president of Youpowered. That's because privacy-enhancing technologies put users much more in charge of their personal data, says Ron Perry, co-founder of IDcide.

"Most people confuse anonymity with privacy," he says. "We see privacy as being able to share information with a party you can trust to keep the information confidential."

Consider Smarterkids.com Inc. in Needham, Mass. Its site recommends products based on a child's individual learning style and educational goals. As a result, it depends heavily on information supplied by customers (and gathered by cookies) to target its content.

Even so, Smarterkids — which denies access to those who disable cookies — leaves it up to the user to decide just how much information to part with and when. For instance, it's up to customers to decide whether they want to save the results of learning surveys done during the course of a session.

"The approach we have taken is to show [users] why we need the information and how we can be better if you give us data," says co-founder Richard Viard. "I think people are fed up with sites that keep asking for information, with no apparent use to the customer."

"The only way personalization will succeed is if Web sites have trusting relationships with their customers," says Lowell, who is also co-chairwoman of the Personalization Consortium, a Wakefield, Mass.-based advocacy group.

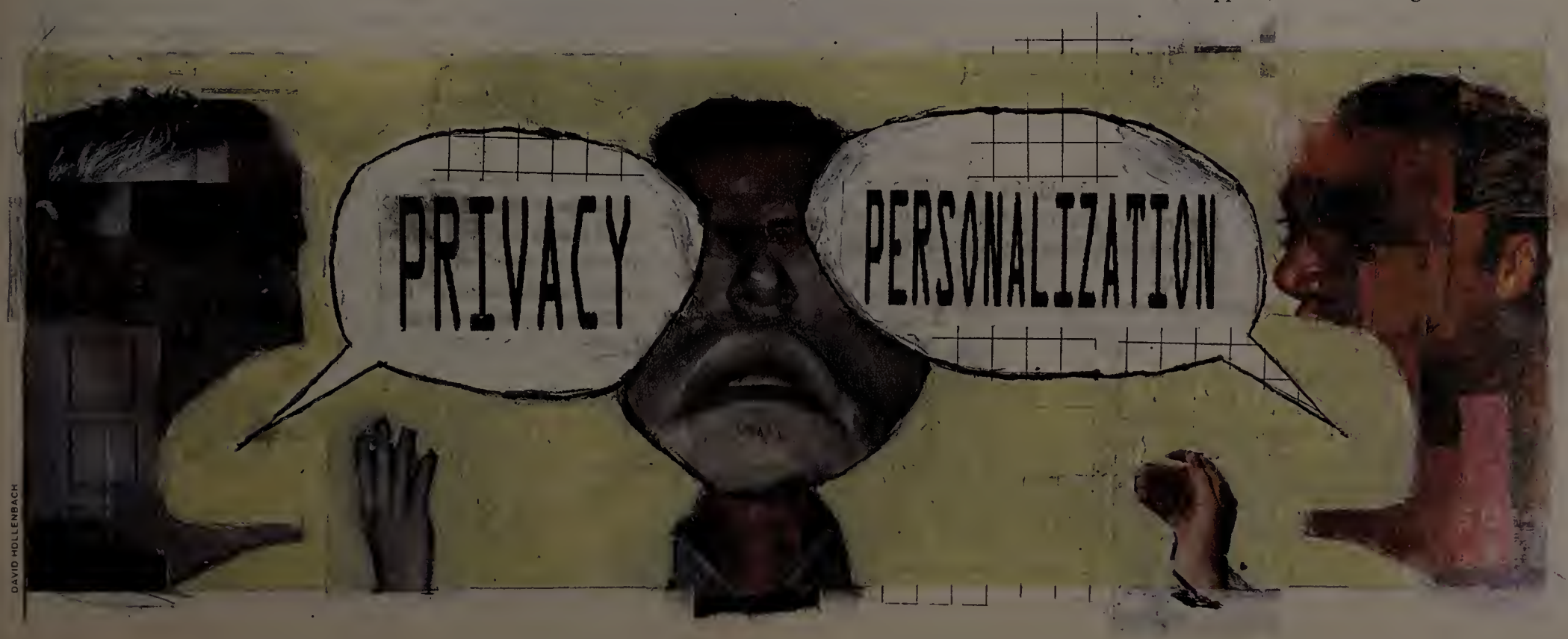
For the most part, though, the vendors who are delivering such technologies are still very small and don't have the user base to be able to dramatically influence personalization trends just yet, says Chris Christiansen, an analyst at International Data Corp. in Framingham, Mass.

"Most of them are just starting to roll out their products and services," he says, so it'll take some time yet to figure out how much of an impact they'll have.

Also, many Web sites have already started doing the kind of permission-based profiling that such technologies hope to help foster, says Jamie O'Neil, chief operations officer at Garden.com Inc., an Austin, Texas-based retailer.

Much of the customer data that's used to deliver personalized content on Garden.com's site, for instance, is voluntarily supplied by customers, he says.

"To me, the real challenge appears to be getting the critical mass of consumers" to support personalization technologies, O'Neil says. "When that happens, we'll start using it."




DAVID HOLLENBACH

# Oblix: Making It Easier To Manage User Rights

*Start-up's software tools aim to ease pain of user-profile, directory management*

BY AMY HELEN JOHNSON

PARSONS CORP., a global construction and engineering firm in Pasadena, Calif., has about 15,000 Windows NT identifications in use, says CIO John Thomas. They're assigned to the company's 11,200 employees, as well as to Parsons' contractors, clients and partners.

When people change or leave jobs, the information technology staff has to update the access permissions. Unfortunately, Parsons operates under steady personnel changes and a heavy IT workload. That means that someone somewhere, at some time, probably has had inappropriate network access permissions.

To solve the problem, Thomas brought in software tools from Oblix Inc. in Cupertino, Calif. He uses Oblix E-Business Solution to manage directories for the corporate intranet and to give external users the ability to manage their profile data within the corporate directory. The tools automate the company's user-profile management chores and keep access permissions up-to-date.

Thomas says he chose Oblix because of its architecture and design, and because Oblix's direction toward a single sign-on to corporate applications and Lightweight Directory Access Protocol-based access controls matched his plans.

## Distributing Admin Tasks

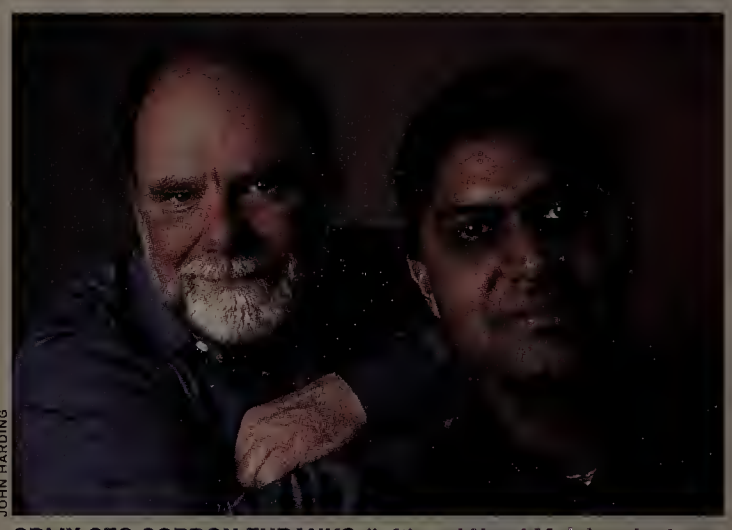
"Our customers are in a hurry to open up information to people on the outside," says Nand Mulchandani, Oblix's vice president of product management. That means giving those people access permission through the corporate directory. But corporations must keep directory administration chores reasonable.

Oblix's key differentiator, says CEO Gordon Eubanks, is that the software distributes administration tasks among trusted subauthorities, such as a partner company's IT department and users. This allows the Oblix installation to scale as an organization adds employees or partners, and it keeps the IT staff from being overwhelmed by all the directory changes.

Thomas takes full advantage of the distributed administration feature. The ability to update items in a profile is split among those who have the biggest stake in their accuracy.

For example, employees can change their phone numbers, but office addresses are strictly in the hands of financial officers because of the tax implications of office locations.

At Tellabs Inc., a switching equipment manufacturer in Lisle, Ill., users are responsible for keeping part of their profile information up-to-date, says systems manager Huzefa Mustaly. These features and the ability to create an organizational chart out of the directory data sold him on Oblix, he says.



JOHN HARDING

**OBLIX CEO GORDON EUBANKS (left) and Nand Mulchandani, co-founder and vice president of product management**

## Oblix Inc.

COMPUTERWORLD emerging companies

**Location:** 18922 Forge Drive, Cupertino, Calif. 95014

**Telephone:** (408) 861-6800

**Web:** *www.oblix.com*

**Niche:** User-profile and policy management

**Why it's worth watching:** Tools automate user-profile management chores at external firms.

**Company officers:**
- Gordon Eubanks, CEO
- Nand Mulchandani, co-founder and vice president of product management
- Kumar Vora, co-founder and vice president of technology
- Sandeep Johri, co-founder, chairman and vice president of customer care

**Milestones:**
- 1996: Company founded
- February 1997: First product introduced
- July 1999: Version 3.6 with Novell Directory Services support released
- July 2000: NetPoint introduced

**Employees:** 143; 270% annual growth rate

**Burn money:** $34 million from Cisco Systems Inc., CSK Venture Capital Co., the Intel 64 Fund, Kleiner Perkins Caufield & Byers, Lehman Brothers Holdings Inc. and others

**Products/pricing:** E-Business Solution (starts at $25 per seat) and NetPoint (starts at $30 per seat)

**Customers:** Tellabs Inc., BayCare Health Systems, Amdahl Corp., Morgan Stanley Dean Witter Online Inc.

**Partners:** Cisco, Novell Inc., Microsoft Corp. and iPlanet E-Commerce Solutions Inc.

**Red flags for IT:**
- Systems that feed updates to Oblix require careful integration.
- IT must clean up existing permission lists before implementing tools.

## Managing the Future

Oblix is working on improvements to the user interface, says Eubanks, along with reducing deployment time. Right now, he says, customizing Oblix can be time-consuming.

The company is also working on better integration with other Web infrastructure products, such as BackWeb Foundation from BackWeb Technologies Inc. in San Jose and DataChannel 4.0 from DataChannel Inc. in Bellevue, Wash., so that Oblix can become a seamless part of the portal technology. And Oblix's NetPoint software, released this month, will give both internal and external users secure, single sign-on access to internal corporate applications, he says.

Oblix will release versions of its software that can handle layers of abstraction, so that the partners of your partners, or your suppliers' suppliers, can be integrated into the access directory. That's going to require an even greater emphasis on security, Mulchandani says.

Thomas says he's satisfied with Oblix but warns that these tools aren't plug-and-play. First, he had to compile a correct set of user addresses — no small task in itself. Then, he had to set up security through a single sign-on with the Oblix tools.

But the results were worth the effort, Parsons says. "People in remote offices for the first time have access to a complete corporatewide directory," enabling the IT department to easily implement a secure, single, sign-on interface, which he says will roll out in the fall.

Thomas says he doesn't intend to figure out the return on investment for Oblix. It's infrastructure, he says, and there's no doubt that it adds value. "We knew that we needed a corporatewide directory and better security," he says. "It's a cost of doing business." ◗

*Johnson is a* Computerworld *contributing writer in Seattle.*

## [ the buzz ] STATE OF THE MARKET

## User Profilers

Oblix is in the middle of a hot market, says Rick Villars, an analyst at International Data Corp. in Framingham, Mass. The problem of centralized, secure user-profile management is more complex when external parties need access to corporate resources. This is happening more as corporations join trading communities – one of the most active spaces in the business-to-business e-commerce arena. Oblix takes a more outward approach than its competitors, which use the more traditional internal system-administration package, says Villars. He likens Oblix to a customer relationship management or partner relationship management package, but with more limitations.

### Business Layers

Rochelle Park, N.J.
*www.businesslayers.com*
Business Layers' first product, eProvisionware Employees, is the user management piece that sets up new profiles for internal users, including names, passwords and access to network applications. The company has provided hooks into popular business applications so that eProvisionware can handle those sign-ons. It's based on Lightweight Directory Access Protocol (LDAP), which enables it to support the directory services used by network operating systems from Microsoft Corp.'s Active Directory, Novell Inc.'s Novell Directory Services and IBM's SecureWay.

### Netegrity Inc.

Waltham, Mass.
*www.netegrity.com*
Netegrity stresses the ability of SiteMinder to be a gatekeeper for Web-based applications. As such, it can be integrated into a custom Common Gateway Interface-based application and work with the major Web servers and application servers, as well as leading network and database directory services. Like Oblix's product, SiteMinder's distributed architecture allows management duties to be delegated to multiple administrators, with certain restrictions.

### Securant Technologies Inc.

San Francisco
*www.securant.com*
ClearTrust is another single sign-on access control product. It emphasizes security, but with intrusion monitoring and automated response on top of policy management, authentication and distributed administration capabilities. It also supports LDAP and application server and Web server environments of the Internet. – *Amy Helen Johnson*

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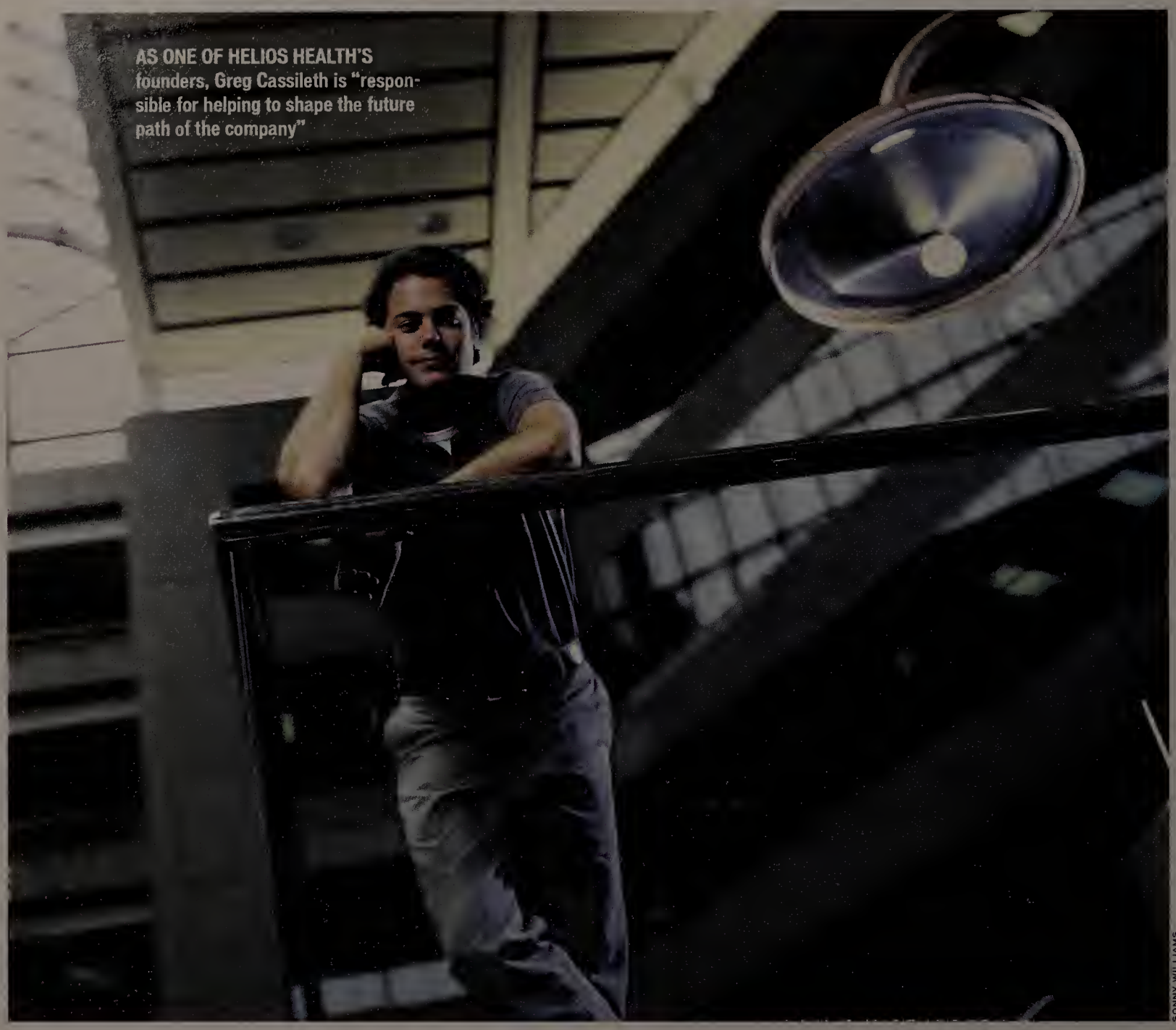

AS ONE OF HELIOS HEALTH'S founders, Greg Cassileth is "responsible for helping to shape the future path of the company"

SONNY WILLIAMS

# Start-up Starter

## For IT pros who really want a challenge and a sense of accomplishment, nothing beats starting your own company. But the risks can be huge, the pay small and the hours long. Greg Cassileth shares lessons he learned launching his own company.

By Bronwyn Fryer

LEAVING JOB security behind and answering the siren call of a dot-com has certainly been the career story of the year. But for real excitement, forget working at a start-up. Start your own instead.

As Greg Cassileth learned, you can expect long hours and little compensation. But if you do it right, for a true sense of mission and accomplishment, the experience can't be beat.

**Greg Cassileth**
*Vice president of content development and co-founder*
*Helios Health Inc.*
*Atlanta*
*www.helioshealth.com*
Helios provides consumers with access to health information and services through Internet portals in physicians' waiting rooms and on the Web.

**What he does:** Cassileth is helping Helios deploy thousands of Linux-based multimedia "e.Stations" in physicians' offices in 20 major cities.

**Skills and experience he brings to the job:** Cassileth calls on his broad background in Web languages (Perl, HTML and PHP3), database and operating systems (Linux, Windows, Mac OS and Unix) and multimedia design. He also relies on his project management, communication and recruiting skills.

**His impact:** He's responsible for the development, implementation and administration of technical operations. "As a founder, I am also responsible for helping to shape the future path of the company."

**What he enjoys:** A sense of mission. "When patients are well-informed through using our e.Stations in the waiting room and our Web site at home, the little time they have to spend with their physicians is much more effective."

**Salary, bonuses, perks:** In the first year or two, "expect to be paid little, work long, hard hours and play hard" for an equity stake. The biggest perk is the environment and the cutting-edge work, he says.

**Toughest challenges:** "Building something from nothing, trying to decide on the right path, pulling together a well-running crew focused on a common goal" and facing the possibility of failure.

**Greatest reward:** Aside from the satisfaction of the work and the experience of an early-stage start-up, the promise of "great liquid financial status" later on, he says.

**Future opportunities:** Cassileth says he would like to found another start-up. "Start-up experience is well respected in the business world. It means you've been through the worst and best of experiences and learned tough lessons the hard way."

**Advice:** "Get involved with something you believe in and work with people whom you trust, whose vision you share."

*Fryer is a freelance writer in Santa Cruz, Calif.*

### Just the Facts

**Who:** Gregory Cassileth, vice president of content development and co-founder
**Company:** Helios Health Inc., Atlanta
**Nature of work:** The development, implementation and administration of Web operations and the Linux-based e.Station network in doctors' offices
**How he got the job:** He's one of the original founders of the firm. "We started the company while tossing around ideas at the kitchen table."
**Skills required:** Computer programming, multimedia, and people and project management
**Training needed:** A bachelor's or graduate degree in computer science
**Advice:** "Go for it!"

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Seek Level I & II Computer Programmers/Software Engineers w/ strong communication skills & any of following skills: VB, SQL & any database, AS/400, RPG/400, COBOL/400, CL, Visual C++ or C++, NT Admin., JAVA/HTML/CGI, COBRA, PERL, Oracle/Sybase/Informix/SQL Developers & DBAs, Lotus notes, Domino and ERP packages. Level I: B.S. degree and 2-3 years exp. Level II: M.S. or B.S. and 5 yrs. exp. Assignments may be anywhere in the U.S. Forward resumes to Manager@MilestoneConsulting.com

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Systems Analyst

Design & develop control software for automation of two-axis platform cybertran & carry out position sensing hardware/software using C compiler on Unix. Implement the control algorithm & user interface. Convert complex mathematical models into C codes. Run simulations for different motion planning algorithms carried out on transputers connected to C Unix with C. Using the results of the simulations, design & develop multi-architecture client/server business applications in IBM-ES9672, Unix, Manugistics environments & manage data-migration from MVS to Oracle with OAI & Maestro scheduler; convert applications from Mainframes, MVS to Unix environment. $66,000.00/yr., 40 hrs/wk., 8:00 A.M. to 5:00 P.M. MS or equivalent Comp. Sc. or Comp. Engg. or Civil Engg. or Physics & 2 yrs. exp. in job offered or related field or 2 yrs. related exp. as a Systems Engineer. Exp. in related occupation to prove 2 yrs. of using specified skills in stated job duties to include noted use of C compiler on Unix, converting complex mathematical models into C codes, IBM-ES 9672, Unix Manugistics, MVS, Oracle, OAI & Maestro scheduler. Job Location: Silver Spring, MD & vicinity. May work at unanticipated locations in the U.S. Mail two copies of resume & a copy of ad to: Dept. of Labor, Licensing & Regulation, 1100 North Eutaw Street, Rm. #201, Baltimore, MD 21201. J.O. # 9686570.

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UNIX SYSTEMS ADMINISTRATOR. Administration/support of UNIX development & production environments. Monitor UNIX systems & IP networks. Implement automated solns for system monitoring, installation & performance measurement. Implement/monitor backup systems. Troubleshoot UNIX servers, OS & hardware. BS Computer Science or equiv + 2 yrs exp Systems Administration or Software Eng. Exp w/ UNIX systems & IP networks, Sun Solaris, UnixWare and/or SCO Unix. Proficiency w/ TCP/IP & related protocols, Shell & Perl scripting. $64K/yr. Send resume to: H.R. Mgr., Ptek Holdings, Inc., 3399 Peachtree Rd, NE, Ste 600, Atlanta, GA 30026, Ref #GS1.

Software Engineer: Research, design & develop embedded real-time software used on avionics flight equipment. Ensure software certification to RTCA DO-178B level C. Utilize custom real-time operating systems to perform context switching between threads. Perform debugging on the 486 DX/2 based target using the Kontron KSE5 emulator. Utilize Metaware High C complier, Microsoft macro assembler & SSI linker. Bachelor's degree or equivalent in Electronic Engineering and 6 yrs exp in the job offered or in a related software engineering field. 40 hrs per wk. $69,306 per yr. Must have legal authority to work in the U.S. Resume to Dixie Sanchez, Teledyne Controls, 12333 W. Olympic Blvd., Los Angeles, CA 90064.

iKena, Inc., an Internet communication software company, seeks several senior-level software engineers with experience in C++, IE or Netscape browser interface, network programming, and client/server development. Windows application GUI programming is desired. Requirements: BSCS or related technical degree with 2 years experience or MSCS or related technical degree; strong technical background and a team player; experience should include at least one year's broad range of experience for the different technical aspects listed above. Please forward resumes to: Dahong Qian, iKena, Inc., 200 High St. 3rd Floor, Boston, MA 02110. Email: hr@ikena.com Fax: 708-575-1807.

Software Engineer, Stoneham, MA; Design, implement and maintain software applications on VAX/VMS, LAN and Unix using VMS, LAN and Unix using VMS system services, Visual C++, PowerBuilder and Sybase. Convert and upload COBOL based data to Sybase database. Req'd. Masters in Comp.Scie. or Physics or Engg. or Math. One (1) year exp in job offered or one year exp in Any Computer Related Profession. 40 hrs/wk., 9a-6p. Mon-Fri. Applicants should submit two (2) copies of his/her resume in response to Case# 20000324, Labor Exchange Office, 19 Staniford Street, 1st Floor, Boston, MA 02114.

Programmer; $35,500/yr, 8a-5p; Dsgn & implmt web-based applics using C++, VB, HTML 3.2, Javascript 1.2, Dvlpr 2000, Oracle on Win NT/98 & Unix; Bach or equiv in comp sci, engg, or related major. Mail resume w/ref# UVS002 to: Udai V. Singh, PC, 2282 Birdie Lane, Duluth, GA 30096.

Software Developer wanted by New York based Software Dvlpt & e-Commerce Co for job loc in Stamford, CT. Must have Bach or equiv in Comp Sci, Info Systms, Elec Engg or Math & 5 yrs s/ware exp. Respond to: Deborah, Fax (212) 441-5843.

SYSTEMS ANALYST. Analyzes user requirements, procedures and problems to automate processing or to improve existing computer systems. Must be able to travel. Two (2) years experience required with Visual Basic. Bachelor of Science degree in computer science, engineering, or math-related and two (2) years experience in job offered required. $62,920/yr.
Qualified applications apply be sending two (2) resumes to Georgia Dept. Of Labor, North Metro Office, Job Order No. GA 6532080, north Druid Hills Road, Atlanta, GA 30329 or to the nearest Department of Labor Field Service Office.

CHIEF PROGRAMMER: Responsible for all phases of development and modification of computer application software for industry in an AS/400 environment. Must have M.S. in Computer Science or equivalent, and two years experience in the job offered. Mon-Fri 40-50 hrs/wk., $60,000/yr., plus $35/hr for time in excess of 40 hrs/wk. Please send resume to Bureau of Workforce Program Support, P.O. Box 10869, Tallahassee, Florida 32302-0869. Job Order No. FL-2088629.

Financial Software Consultant wanted by Software Sales & Consulting Co in New York, NY. Must have BA or BS in Comp Sci, Math or Engg & 2 yrs exp.

Respond to: Stephanie Cohen, Enterprise Solutions, 875 Sixth Ave, Ste 200, New York, NY 10001.

Web developer: to create a variety of web based technologies. Access assigned projects to determine optimum solution. Communicate with account service personnel the estimates, decision, issues and suggestions & ensure complete customer satisfaction. Req. MS or equivalent in CS, CIS, MIS, CE, or ECCS. Proficiency in HTML, SQL, Java and Net commerce. $60,000/yr, 8 to 5, 40hr/wk. Contact Dwight L. Baker at Rare Medium, Inc. 1165 Sanctuary Pkwy., Ste. 300, Alpharetta GA 30004, fax: 770-576-5391.

Fast growing I.T. Co. seeks Manager, Finance for its PA/NJ office. Will be responsible for directing & managing financial affairs of the company, hiring and supervising the staff in Accts. Dept. Req. Bachelor's degree/equivalent in Finance/Commerce/Economics/MBA & 6+ yrs. of exp. in Finance/related field. Some education/exp. in Computers req. Send resume to Innovative Solutions Systems, Inc., 501 Abbott Dr., Suite 1, 2nd Floor, Broomall, PA 19008.

Needed: Software Engineer to research, design & develop computer software systems using C, Oracle, SQL*Forms, SQL Plus, SQL DBA, PRO*C, SQL Loader, PL/SQL, ABP & other programming languages, tools & operating systems. Must have B.S. or equivalent in Computer Science & 5+ years or exp. as and Information Technology professional. 18+ months exp. in C, Oracle, SQL*Forms, SQL Plus, SQL DBA, PRO*C, SQL Loader, PL/SQL, ABP & other programming languages, tools & operating systems. Send resume to: H.R. Dept., 2025 Lincoln Hwy., Ste. 322, Edison, NJ 08817.

Software Engineer to research, design & develop computer software systems for manufacturing and other industries applying principles & techniques of computer science, engineering & mathematical analysis using various operating systems, C, C++ & OTHER PROGRAMMING LANGUAGES. Req. B.S. or Engineering degree in Computer Science/equivalent plus 6 yrs of exp. or Masters/equivalent in Computers & 2+ yrs. of exp. 18+ months exp. in C, C++, DOS, OS/2, UNIX, MS Windows, VAX/VMS & AIX. $70,000 p/a, Send resume to Playekar Companies, Inc., 1959 East Third St., Williamsport, PA 17701.

Fulltime Jr. Systems Analyst responsible for coding, designing and re-engineering of applications for the company and its clients using supercomputer environment. Write applications using C++, JAVA, and RSA Cryptographic Algorithm. Must have a Bachelor's Degree in Telecommunications Engineering, CS or related field. Foreign degree equivalent accepted. Must have one year of experience in job offered or in a position with same duties. Salary: $62,000/yr. Send resume to Raj Shekaran at Software Research Associates, 70 Mansell Court, Suite 100, Roswell, GA 300786.

Full time Systems Analyst responsible for analyzing user requirements, procedures and problems to automate processing or to improve exiting computer applications using Visual Basic and Clipper. Must have a Bachelor's Degree in CS, EE, or BBA with at least a minor in CS, or related field (foreign degree equivalent accepted). Must have two years of experience in the job offered or in position with same duties. Salary: $62,000/yr. Send resume to Raj Shekaran at Software Research Associates, Inc. 70 Mansell Court, Suite 100, Roswell, GA 30076.

Systems Analysts (multiple positions) sought by Computer Consulting & S/ware Dvlpt Co in Herkimer, NY. Must have Bach in Comp Sci & 2 yrs comp exp. Respond to: HR Dept, Vishnusoft, LLC, 970 Steuben Hill Rd, Herkimer, NY 13350.

Systems Analyst. Analyzes user requirement, procedures, and problems to automate processing or to improve existing computer system. Bachelor's in computer science, engineering or math-related and two years experience in job offered required. Must be able to travel. $62,920/year. Qualified applicants apply by resume to Chand Akkineni, President, Softpros, Inc., 1 Dunwoody Park, Suite 230, Atlanta, Georgia 30338

Sr. SW Eng'r: Dsgn logical & physical DB w/ Oracle8 standard/parallel server; Install, confi'g & upgrade Oracle & Informix 7+ SW; Maintain DB in WinNT, HPUnix & DECUnix envir't; Dsgn & implem't backup/recov'y strategies; Install, maintain & enhance Oracle Web Applic'n server applic'n programs. 40h/w, 8-5, $61k/y, MS in Comp Eng'g, 2 yr exp in any posi'n w/ Oracle 7+ & Informix 7+ in DB Adm'n. Resume to Bureau of Wrkfrc Sup'rt, PO Box 10869, Tallahassee, FL 32302 Re: Job# FL2099808

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- ★ SYBASE DBA
- ★ SENIOR HL7 INTERFACE PROGRAMMER
- ★ SYSTEMS PROGRAMMER
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HealthStar Network offers an exceptional compensation package that you would expect from an industry leader. For consideration, please send/e-mail your resume indicating position of interest and salary history, to: **Michael Pagllaro, Senior Vice President/Human Resources, White Plains Hospital Center, Davis Avenue at East Post Road, White Plains, NY 10601; E-mail mpagllaro@healthstar.org** Equal Opportunity Employer M/F.

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Senior Software Engineers (multiple openings): Design, develop and implement software systems to determine feasibility of design and directs software testing procedures, programming and documentation using relational database management systems (RDBMS). Work involves extensive travel and frequent relocation. Must have 1 year of experience using 1 from Group A and 2 from Group B **OR** 1 from A and 1 from B and 1 from C **OR** 1 from A and 2 from C. A) DB2, FoxPro, Informix, Ingres, MS-Access, Oracle, Paradox, Sybase and Unify; B) AIX, DOS, HP-UX, MVS, Novell, OS/2, Sun OS, UNIX, VAX/VMS, Windows; C) 4GL, APT, C, C++, COBOL, Case Tools, C Shell, Crystal Reports, E-SQL, Easytneve, JAVA, ODBC, PowerBuilder, PowerDesigner, Power J, Power++, S-Designer, SQL, Shell Script, Visual Basic. Master's degree in one of several limited fields: Computer Sci/Apps, Eng., Chem., Math, Physics or a scientific or business related field. Will accept Bachelors degree with five years of progressive experience as computer professional. Salary: $75,000 per/yr, 40 hrs/wk, 9:00-5:00 p.m. Please submit resumes to: Mr. Terrance Kinney, Manager, Armstrong County Team PA Careerline, 1270 North Water Street, P.O. Box 759, Kittanning, PA 16201-0759. Job Order No: WEB 101926.

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Systems Analyst (Burlington /Boston, MA): Participate in all the phases of system development life cycle, & lead the development team. Prepare specifications by effective user interaction using CASETOOL like BACHMAN, database design, development, testing and implementation of business systems and applns based on functional requirements in Mainframe & Client - Server environment; on IBM Mainframes such as IBM 3090 using MVS as OS with CICS, VS COLBOL II, CSP, DB2, IDMS, VSAM JCL, TSO; Data conversion from Mainframe to Client-Server using Oracle database on UNIX as OS, SQL*FORMS 3.0, SOR, PRO*C, Developer 2000 (Forms and Reports); user interface and training; provide enhancements, technical support, maintenance and documentation for the developed s/w. Master's degree in Comp. Sci., or Comp. Engg., or Electronics or Electrical Engg.; or Bachelor's degree with 5 yrs. of progressive exp. in the job offered. 40 hrs/wk, 8am to 5pm, $55,993/yr. Pls send 2 copies of resume to Case# 19992470, PO Box# 8968, Boston ,MA 02114.

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Senior Software Engineer and Software Engineer positions available to design, develop and implement software systems to determine feasibility of design and to direct software testing procedures, programming and documentation. Candidates must have one year of experience in job offered or as a computer professional. Some positions require additional year of experience in a particular skills set (see below). Bachelors or Masters degree, or foreign equivalent, is required in one of several limited fields: Computer Science/Apps, Engineering, Chemistry, Math, Physics, or scientific or business related field. In lieu of Masters degree, Bachelors degree, or foreign equivalent, with five years of progressive experience will be accepted. Work involves extensive travel and frequent relocation. Salary ranges from $70,000 to $120,000 per/yr depending on skill set and experience, 40 hrs/wk., 9:00-5:00 p.m. Please submit resumes to: Rapidigm, Jaime Lopez, 4400 Campbells Run Road, Pittsburgh, PA 15205.

RDBMS: Informix, Oracle, FoxPro, Sybase, SQL Server, Progress;
Oracle RDBMS: Designer 2000, Developer 2000, Oracle RDBMS, SQL*Plus, Pro*C, PL/SOL, SOL*Forms, SQL*Reports, SQL*Loader, Oracle Forms, Oracle Reports, SQL*Menu, SOL*DBA, SOL*Net;
GUI: Windows 95/98/00, Windows NT, Visual C, Visual C++, C, C++, Visual Basic, PowerBuilder, MFC, Crystal Reports, COM/DCOM, CORBA;
Mainframe: IBM3090, IBM ES900, MVS, IMS, CL/400, CICS, TSO, VSAM, COBOL, JCL, AS/400, DB2, VAX/VMS, MVS;
ERP: PeopleSoft, SAP, Baan or Oracle Applications/Financials/Manufacturing/HR;
Internet Applications: ASP, HTML, Java Script, Java, Coldfusion, Broadvision, ATG Dynamo, Netdynamics, Websphere, Java Beans, Front page, CGI, Pearl, MTS, IIS;
CRM: Siebel, Clarify, Oracle CRM, SAP CRM;
DBA: Oracle, Sybase, Informix, SQL Server;
Unix/NT Administrators: Sun Solaris, IBM RS/6000, DG-Digital, SCO Unix, Windows NT Administrators, HP9000, HP UX, IBM AIX, IRIX.

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ASSOCIATE SOFTWARE ENGINEER: Utilize theoretical knowledge of programming languages, computer architecture and organization and computer networking to develop Web interface for electronic commerce; to write HTML templates which follow the interface of mainframe; to create dynamic page using Jsp Servlet based on the MVC model; to manage the design, development and implementation of reusable applications utilizing UML, Together/J, XML, EJB and WebLogic; to analyze applications to ensure that programs meet project requirements in the areas of application performance, correctness, usability and availability; to implement design specifications in object-oriented programming languages; test, maintain, upgrade and debug programs; train and assist applications users; and draft computer-based training manuals. Must have a Master Degree in Computer Science. Must have either universify level coursework or experience in Object-Oriented Design; C++, Java Programming; Unix Operating system; Oracle; and Web Technology. 40 hours per week, 9:00 a.m. to 5:00 p.m., Monday to Friday. Must have proof of legal authority to work in the United States. Salary Range: $66,789.00 and up per year. If interested, submit resume in duplicate or in person: Mr. Fred A. Cassidy, CoreCommerce, 1600 Parkwood Circle, Suite 525, Atlanta, Georgia 30339.

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Software Engineer and Senior Software Engineer Positions to design, develop and implement software systems to determine feasibility of design and directs software testing procedures, programming and documentation. Work involves extensive travel and frequent relocation. Must have one year of experience in job offered or as a computer professional as well as one year of skills in field. Bachelors or Masters degree in one of several limited fields: Computer Science/Apps, Engineering, Chemistry, Math, Physics, or scientific or business related field. Will accept Bachelors degree with five of progressive experience. Salary: $65,000 to $105,000 per/yr, 40 hrs/wk., 9:00-5:00 p.m. Please submit resumes to: Rapidigm, Jaime Lopez, 4400 Campbells Run Road, Pittsburgh, PA 15205.

RDBMS: DB2, Informix, Oracle, FoxPro, MVS, Novell, UNIX, VAX/VMS, Windows, APT, Crystal Reports, C, C++, COBOL.
Oracle RDBMS: Designer 2000, Developer 2000, Oracle RDBMS, Oracle Applications, SOL*Plus, Pro*C, PL/SQL, SOL*Forms, SQL *Reports.
GUI and Internet Applications: Windows 95, Windows NT, Visual C, Visual C++, C, C++, Visual Basic, PowerBuilder, TCP/IP, HTML, MFC, CGI, MTS.
Mainframe: IBM3090, IBM ES900, MVS, IMS, CL/400, CICS, TSO, VSAM, COBOL, JCL, AS/400
PeopleSoft, SAP or Baan

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- Do you have good project management skills with a proven track record of implementing large complex systems such as SAP?
- Are you confident working with other departments, as well as with external companies?
- Do you have a strong working knowledge of methodologies, along with project management and above average communication skills, including written work and presentations?

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SENIOR CONSULTANT, COMPUTER CONSULTING IN AS/400, Synon and RPG environment. Require Bachelors Degree or equivalent in computer science or related field. Must have one year programming or systems analysis experience utilizing AS/400, RPG, and Synon resulting in extensive knowledge in area. Salary $50.00 per hour, 40 hours per week. Send resumes to Department of Work Force Services, Attn: Pat Redington, Job Order #3061024, 140 East 300 South, Salt Lake City, Utah 84111.

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# IT Careers in the Washington, D.C. area

If you accept the notion that the Internet was born in the bowels of the federal government, then you also can accept that Washington, D.C., remains not only a political hotbed but also a hotbed of information technology.

The growth of many of the original companies was based on business with the government, so when they began branching out into commercial applications, it seemed natural to stay in a geographic region where talent abounded and opportunities were exploding.

## CSC Technology Management Group
## Falls Church, VA

In 1959, CSC began as a government contractor. And while the company is headquartered in El Segundo, CA, its primary customer is on the opposite coast. "As we diversified into the commercial marketplace, we knew we had a base in Washington from which to leverage innovation and thought leadership," explains Lyn Burchfield, vice president of new business development. "Today there's still the government strength, but we've also achieved tremendous growth in our commercial and global business."

CSC's Technology Management Group is a full-service outsourcing business unit that supports information technology infrastructure and application development and maintenance for clients around the world.

Burchfield says assignments are available throughout the world, ranging from application design and development to SAP implementation to e-business solutions. "We work to match employees' skills and needs with ours," says Burchfield. "Within the New Business Development area, we are looking for senior people who will oversee the new business process, from the initial bid stage through the capture of new business, and who have the IT background to understand technology and outsourcing."

CSC manages large-scale applications and legacy systems, and provides system integration, management consulting and end-to-end e-business solutions globally for large organizations, Fortune 1000 companies and dot-coms. "For that reason there is a need for all the hot skills. But we also need people who are customer-facing, who understand the customer service role," adds Burchfield.

CSC employees have access to educational assistance, symposia and career enhancing activities, such as the Leading Edge Forum. "If you have an interest in a new technology, we allow you to work on that versus a traditional work assignment," Burchfield explains. "It's a way for you to advance in ways that interest you while helping the company. I believe the thing that pulls people into CSC is the people who are here," Burchfield says. "Even those people who leave oftentimes come back, because they like the people who work here. We have a great career development approach – I started as a programmer. Within CSC you have the opportunity to create your own career path. And of course the projects are among the best and most interesting in the world."

## Network Access Solutions
## Sterling, VA

Most of the companies who played a pivotal role in developing the Internet can be found in Washington, D.C. So it's good business for Network Access solutions to be close by, says David Casti, vice president for corporate strategic development. NAS provides DSL to its customers, the high-speed link that can drive down costs for businesses large and small. "The power of DSL is that it can reduce the cost of high-speed technology to users, whether individuals or businesses," says Casti. "There are just fewer components than with a T1 line, while allowing data to move just as faster or faster."

NAS is positioning itself to provide service to small, mid or large businesses using a data network. "We can come into your business and replace your traditional network with a DSL network that costs about half as much. You can use the same hardware as before, or we can upgrade you," explains Casti. "We can provide either a high security private enterprise network, or Internet connectivity at a steep discount over traditional technologies. This approach makes high speed networking much more affordable for everyone."

Founded in 1994 as a network integrator, NAS later added the resale of equipment, monitoring and management of equipment for after-market and buying network services to provide to customers. "Our vision is to be a one-stop shop, from concept through planning, equipment, network deployment and ongoing management," says Casti.

While the business is growing quickly due to the service it can provide, it also is expanding its geographic area. From the Northeast and MidAtlantic, NAS plans to expand into the Southeast, Rocky Mountains and West Coast. "We need people in sales, support and delivery. We are hiring at every level and are looking for people who may have skills but perhaps no telecommunications experience. We can provide that experience, as well as expand on existing skills."

NAS also needs IT support personnel. "This will be very important as we grow, to provide support to the market and to help us scale our company." Casti says the NAS culture is driven by its core value of customer satisfaction through offering the highest levels of quality and service reliability. "We tend to attract employees who share our values, who enjoy working with customers and who are comfortable in a business casual environment.

Currently NAS is headquartered in northern Virginia but has offices in Richmond, Columbia, Baltimore, Philadelphia, Pittsburgh, New York City, Boston and Delaware. "Because we are still a fast-moving and relatively young company, NAS provides the opportunity to work in a start-up environment," adds Casti. "We will be expanding into cities such as Denver, Seattle, Minneapolis, Atlanta, Nashville and Miami. Since we have been successful in the mid-Atlantic region, these new offices will have the support needed to help their operations succeed."

Key benefits to employees include the ability to take on a variety of responsibilities and gain exposure to the overall business. "We also provide DSL-enabled Internet to employees free of charge and at a significant discount for friends and family members," Casti says. "My staff joined NAS because it is a great place to learn, we recognize and reward performance, and we offer competitive packages even for this very hot D.C. market."

## Sequoia Software
## Columbia, MD

A little over two months ago, Sequoia Software went public. Recruiting at the firm remains in high gear with more than 70 individuals joining the company already this year. "We're doubling in size this year," explains Jennifer Spiegel, vice president, human resources.

Sequoia employees are excited about the launch of their new flagship product, Sequoia's XML Portal Server 3.0 OR XPS. "XPS is an e-business application our customers are deploying for business-to-business, business-to-employee and business-to-consumer portals and marketplaces, some of which support wireless devices like webphones and PDAs," Spiegel says. "Sequoia sells software, not services – we're a product development company, using Internet-standard technologies, and that's very compelling to a lot of talented people."

The company has positions open for software engineers and technical professionals with C++, COM, and ATL development experience. Sequoia is also hiring web developers with Visual Basic, ASP and GUI (graphic user interface) skills.

"Sequoia is a great option for anyone who wants to avoid the commute associated with working in Baltimore or the Washington, D.C. corridor," adds Spiegel. "We're developing next generation e-business software. People are eager to apply and extend their skills here. Less tangible is our rapid growth, which means everyone's work is highly visible."

In the wake of going public, Sequoia has established incentive programs, based on individual and company performance. "There are goals we all must achieve, and when they are met, rewards follow," Spiegel explains. "We anticipate solid growth during the third and fourth quarters."

**For more job opportunities in the Washington, D.C. area, turn to the pages of IT Careers.**

**If you'd like to take part in an upcoming IT Careers feature, contact Janis Crowley, 650.312.0607 or janis_crowley@itcareers.net.**

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# Diversity & IT Careers

**As one of America's youngest industries, information technology faces issues of diversity internally and externally to a greater degree than most. The labor market for technologically savvy people has never been tighter. At the same time, IT-based companies need the ability to appeal to the most diverse public and consumer ever – from how they design their products and services to how they market them.**

## America Online Dulles,VA

Diverse expressions of ideas and individuality have been hallmarks of America Online since its inception. According to Ranell Durgan, AOL looks at valuing diversity as an internal and external concern. Within AOL, "our people bring a diverse background of talents, interests, insights and viewpoints to create a rich business," says Durgan. "We believe that human diversity is the key to innovation and the invention of powerful ideas."

Similarly, AOL reaches to new markets and diverse populations through its marketing and the way in which it expresses civic responsibility. Durgan says the AOL Foundation works to bridge the digital divide, working to empower under-served populations. "Our civic engagement focuses on fostering and improving communities, from online safety to education, philanthropy and healthcare access," she says.

With this multi-faceted approach, AOL continues to push forward on building a workforce that reflects an increasingly diverse consumer base. "We are talent driven, and we need diversity to ensure we can attract the best tolent, anywhere," she says. "Having diverse talent and people is the mognet for attracting new talent."

AOL is hiring a wide range of employees, from executives to individual contributors across all of the company's businesses. "We are looking for people in marketing, sales, business development, technology, interactive content developers and programmers," says Durgan. "In the Internet spoce, a lot of hiring is just-in-time hiring so we are continuously in a recruiting mode."

In addition to technological and business competence, the company looks for people who are results focused and effective self- and time-managers. "Because we are a matrixed organization, you need to be a team player and partner effecitvely with others," adds Durgan. "AOL is a dynamic and fast-paced environment characterized by a lot of ambiguity, so you need to have the flexibility to operate effectively."

The company will continue to attract new employees, in large part, due to the brand and its leadership role with the Internet. "We give employees the opportunity to make a difference – your work matters here," says Durgan. "Because we are unique in many ways, we use the tagline – AOL, Unlike Anything, Anywhere – because no prior experience can fully prepare you for AOL. AOL-Time Warner will be the leading Internet and media communications company of this century."

## Goldman Sachs New York, NY

One of the business principles guiding global investment banking and securities leader Goldman Sachs states, "We make an unusual effort to identify and recruit the very best person for every job. Although our activities are measured in billions of dollars, we select our people one by one."

It's a guidepost that reflects how Goldman Sachs approaches diversity, with focus on attracting, retaining and rewarding the "very best people," explains Pamela Taylor, a vice president in the firm's Technology Division. Over the past few years, the company has developed flexible work arrangements, backup on-site childcare at some locations, parenting programs, and mentoring programs to help employees with their career development.

Taylor says that in 1999 the Technology Division began to address some challenges that related directly to diversity, including the recruiting of new employees. "The Technology Division has signed an unprecedented partnership with AMIE (Advancing Minorities' Interest in Engineering), establishing a partnership with North Carolina A&T State University to encourage and foster recruiting the best and brightest technology candidates," she says. The division also developed a Technology Careers Program with the Sponsors for Educational Opportunity (SEO), an organization that provides minority students with internship opportunities in a number of areas with leading financial services companies, as well as consulting and law firms.

"The biggest challenge that I envision is our ability to keep current with changes in the composition of the workforce," says Taylor. "These changes can lead to new initiatives that will help us attract and retain the best people."

Goldman Sachs' Technology Division looks for technology professionals who know the importance of their talents and skill, "and we give them many opportunities to enhance them, build on them and develop others," says Taylor. The company hires summer interns as well as new associates.

"To succeed at Goldman Sachs you must be bright, creative, highly motivated and a team player," adds Taylor. "I've been with Goldman Sachs for 15 years and have found that we always stress teamwork and professionalism in everything that we do, without stifling individual creativity."

# Diversity and IT Careers

## KPMG Consulting
## McLean, VA

"While valuing diversity has long been part of KPMG Consulting's operation mode, the baseline of the efforts is in identifying, recruiting and keeping the best quality candidates we can find," says Keira Blazer, director of recruiting. "By the very nature of this challenge, we must look every place we can to find the most talented person. And the only way to attract top, diverse talent is to demonstrate that we do have a clear position on diversity and opportunities for everyone."

KPMG Consulting's leadership is diverse, she adds, and the reflection of a diverse-rich company begins with the KPMG web site. "We are looking for the full gamut of professionals," says Blazer. "Our vision as a company is to become the key Internet integrator in the marketplace. We are helping businesses come to fruition through Internet technologies, which requires just about every skill set – from analysis through development, implementation and full utilization."

Blazer is clear in her description of KPMG Consulting's business. "We operate throughout the world. We help businesses transform, but we also must provide the drive, the vision and the creativity needed for start-up businesses. We're helping new and old businesses build it, grow it and make it into something new."

Just as KPMG Consulting approaches clients as life-long relationships, so too does it approach its relationship with employees. "To be good at recruiting people to KPMG, I have to believe what I'm selling," says Blazer. "And that means selling a way of life, not a product. You will have the sense of belonging to a team here. You'll be able to move around the consulting group. There are opportunities for you to grow and develop, along the line of your own goals. If there's a technological challenge you want, we have it here. We have the size and breadth that allow you to virtually change careers without ever leaving KPMG Consulting."

## Microsoft
## Redmond, WA

"Diversity is essential in terms of how we attract and retain people," says Santiago Rodriguez, corporate director of diversity for Microsoft. "But diversity is essential to how we design products and services and market them. That's what makes my job interesting – diversity walks through every aspect of this business."

In reviewing recruiting and retention data, Rodriguez is painfully aware of the shortage of women in software engineering and of African-Americans and Latinos in most every category. "In periods of full employment, it's an even bigger challenge," he says.

Rodriguez believes that no company is a perfect fit for everyone. "In the case of Microsoft, I was attracted by the philosophies of empowering people and meritocracy. If you are good, you will flourish here. The issues that create difference – background, race, where you come from – are less of the equation when the focus is on recognizing merit."

Microsoft is in a continuous recruiting mode. "The largest need is for what we call mission specific jobs, software design engineers and testers," says Rodriguez. "A high technology company like Microsoft also needs technically talented professionals in sales and marketing, administrative groups such as procurement and public relations and human resources."

When reviewing resumes, Microsoft looks for three characteristics. "The technical background is a given, so we are looking for resumes that scream out that a person is passionate, smart and gets things done. That's how you open eyes at Microsoft," Rodriguez adds.

"Once you come to Microsoft, you will be surrounded by people who are very smart and who can contribute to your learning. You'll have the ability to make a difference because of what you bring to the business, but also because of the products we make."

## OSI
## Folsom, CA

As the telecommunications industry revolutionizes and morphs into the communications industry, the pace of change is near frantic and the demand for the most talented, diverse thinking people is crucial. That's how OSI views its approach to valuing diversity - as an imperative to navigate the increasingly complex technological future.

Bud Mullinax, vice president for human resources at OSI, says, "A diverse workforce will help lead us through the ever-changing times set ahead for us. We need a workforce that is technology-wise, sales motivated and success driven. There is no one idea or definition of the people who will get us there. Rather, it's more important than ever that they are as diverse as possible."

Mullinax says OSI is looking for people to fill positions in sales, marketing, software development and professional services. "We search for candidates who have software experience, telecommunications experience and other skills. On the technical side, we are looking for people with degrees in computer science, business administration and marketing. Most important is evidence on the resume and during the interview of sheer determination, motivation and results."

In existence since 1989, OSI went public in 1995 and continues to build on its original small-company values. "We continue to believe in the small-company values of the people who work here as our number one asset," says Mullinax.

## PricewaterhouseCoopers
## Philadelphia, PA

When Mark Farrington, director of diversity recruiting and retention, surveys the landscape of his company and the consulting industry, he sees a clear mission. "People of color are not traditionally exposed to consulting as a career option early on in their education," he says. "We believe there is a much better chance of building a highly qualified, highly diverse, inclusive company if we concentrate on talented professionals, but also on students."

To do so, Farrington and PWC have become involved in a number of graduate school and undergraduate school initiatives to recruit interns. "We tell these students that consulting and PricewaterhouseCoopers offer outstanding ongoing learning, cutting-edge technology and that we work with the best clients in the world. You have the independence of creating solutions for clients while working with some of the best minds in the industry."

Career opportunities include the complexity of large-scale immediate projects, frequently involving global operations. For new college grads, PWC offers extended training and then participation in proposal preparation and solution development. "At PricewaterhouseCoopers, you are exposed to a broader band of experienced opportunities without leaving the organization. That's an important reason as to why people who come to our firm tend to stay," he adds. "You will have opportunities to work with established Fortune 50 companies and start-ups, all without changing the logo on your business card."

The firm is looking for individuals with experience in e-business, financial management and the functions of human capital and supply chain management, business-to-business and systems integration and evolution.

## The Vanguard Group
## Valley Forge, PA

As The Vanguard Group globalizes its business, it must also globalize its workforce. David Gaskin, the principal at Vanguard responsible for employee retention, college relations and diversity, says, "Working with Vanguard means working at an organization that really values its people.

"At Vanguard, we define diversity as the inclusion of people with different cultures, talents, backgrounds and experiences. We also want to assure fair treatment for all of our 10,500 crew members [how Vanguard refers to its employees], which means that our work environment should be one in which everyone is treated with respect, acceptance and dignity."

Four themes dominate Vanguard's diversity efforts – recruiting, retention, communication and training. "We've certainly increased the diversity of candidates and new crew members," says Gaskin. "Just as important is retention. We're making sure we not only recruit diverse crew members, but that we are good at keeping people, as well."

The Information Technology group at Vanguard has some unique aspects, Gaskin notes. "We are working to bring new crew members on board. Some of those recruits are foreign nationals who must adjust to a new job, a new culture, and sometimes even a new predominant language. To help these crew members assimilate, Vanguard will soon offer two learning opportunities – an acculturation workshop for the crew members and their management team to help both groups better understand their cultural values and contributions; and a communications workshop for crew members for whom English is not their native language."

Vanguard is looking for individuals who know typical IT languages, web design and architecture. "But we also need people who are flexible, who can lead, and who are enthusiastic and passionate about their field," says Gaskin.

"If you join Vanguard, you'll work with great people that you can grow with and learn from. You'll work with a leading company in the field of mutual funds – an industry that is at the forefront of cutting-edge technologies," says Gaskin. Here you'll find a learning voyage where everyone is given the opportunity to hone existing skills and build new skills. Most importantly, because IT and business professionals partner at Vanguard to develop business solutions, a very broad array of IT roles and positions are available here."

**For more information on diversity in IT careers,**

**turn to the pages of IT Careers.**

**If you'd like to take part in an upcoming**

**IT Careers feature, contact Janis Crowley, 650.312.0607**

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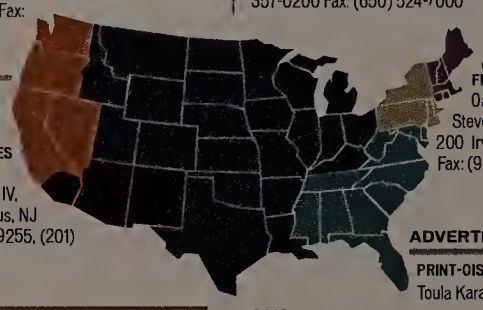

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| Auspex Systems | 16.1 |

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|---|---|
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| Network Applinace Inc. | 12.25 |
| Yahoo Inc. | 12.13 |
| Businesss Objects S.A. | 11.88 |
| IBM | 11.19 |
| Sun Microsystems | 10.63 |
| Dst Systems Inc. (H) | 10.25 |

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| Unisys (L) | -27.3 |
| Globalstar Telecom. Ltd. | -25.3 |
| Informix Software Inc. | -24.2 |
| Lexmark International Group | -23.1 |
| Tektronix | -20.5 |
| National Semiconductor | -20.2 |

| DOLLAR | |
|---|---|
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# Nasdaq Suspends Trading of Vari-L

*Former accountants allege illegal acts*

BY LEE COPELAND

INDUSTRY ALMANAC

WITH ITS former accountanting firm alleging illegal acts and calling for possible further income restatements, wireless-equipment maker Vari-L Co. faces an indefinite suspension of its stock trading by Nasdaq Stock Market Inc.

Nasdaq halted trading of Denver-based Vari-L [Nasdaq: VARLE] indefinitely July 7 after the resignation of the company's independent accounting firm, Englewood, Colo.-based Haugen, Springer & Co. The firm made allegations of illegal acts, stating it was "uncertain" about management's representations and lacked cooperation from Vari-L's former controller, Sarah Hume, in investigations into revenue discrepancies. Haugen Springer officials say revenue statements from 1997 through last year could be inaccurate.

Vari-L has retained New York-based KPMG International as its new accounting firm.

Vari-L's troubles didn't begin when Haugen Springer quit. After hitting a 52-week high of $39.25 per share Dec. 23, Vari-L's stock price stumbled in an overall market correction on technology issues. Yet analysts labeled the stock a Buy after Vari-L posted first-quarter income of 16 cents per share on sales of $7.87 million, up 48% from the same quarter last year.

But in mid-May, Vari-L restated its 1997 revenue by $1.3 million, which adjusted income down from 45 cents per share to 41 cents. Hume resigned in late May, and Vari-L's chief financial officer stepped down one week later. The company was also hit with a bevy of shareholder lawsuits stemming from the earnings restatement.

Steve Wing, an analyst at American Fronteer Financial Corp. in Denver, says he was bullish about the company and its future earnings potential until Nasdaq halted trading of the stock.

"So far, what we've seen is restatements that are immaterial — just a few cents from 1997," he says. "We can only analyze so much, and we rely on auditors to a certain degree. [The accountants] are there to do a job, and now one has to ask what they were doing."

Trading won't resume until Nasdaq completes an investigation, says Nasdaq spokesman Wayne Lee.

Officials from Vari-L and Haugen Springer didn't respond to requests for comment.

## Vari-L Troubles

*Vari-L's stock was pulled from Nasdaq after the company's former accounting firm alleged illegal acts.*

**July 7** ▶ **$12** Trading halted; accounting firm announces resignation

**June 1** ▶ **$10** CFO resigns

**May 24** ▶ **$9.63** Controller resigns

**Dec. 23** ▶ **$39.25** Stock hits 52-week high

| EXCH | 52-WEEK | RANGE | | JULY 21 2 PM | WK NET CHANGE | WK PCT CHANGE |
|---|---|---|---|---|---|---|
| **SOFTWARE** OFF -3.5% | | | | | | |
| A5WX | 149.12 | 11.00 | Active Software | 76.00 | -11.50 | 13.1 |
| ADBE | 143.31 | 40.40 | Adobe Systems Inc. | 132.13 | -4.44 | -3.2 |
| ARBA | 183.34 | 16.56 | Ariba Inc. | 126.69 | -0.38 | 0.3 |
| AZPN | 55.37 | 8.12 | Aspen Technology Inc. | 34.06 | -2.25 | -8.2 |
| AOSK | 56.06 | 17.00 | Autodesk Inc. | 23.06 | -0.81 | -3.4 |
| AVID | 25.56 | 8.75 | Avid Technology | 13.63 | 3.50 | 34.6 |
| 8AANF | 16.25 | 1.12 | Baan Co. N.V. | 2.31 | -0.09 | -3.9 |
| BMCS | 86.62 | 18.50 | BMC Software Inc. (L) | 18.88 | -1.08 | -5.3 |
| B08J | 150.87 | 17.93 | Businesss Objects S.A. | 94.25 | 11.88 | 14.4 |
| CDN | 24.62 | 9.18 | Cadence Design Systems | 22.13 | -0.63 | -2.7 |
| CHKP | 295.00 | 26.06 | Checkpoint Software Tech. Ltd. | 248.69 | 14.06 | 6.0 |
| CTXS | 122.31 | 17.31 | Citrix Systems Inc. | 17.31 | -4.06 | -19.0 |
| CDGN | 46.50 | 9.68 | Cognos Inc. | 42.50 | 0.75 | 1.8 |
| CA | 79.43 | 25.00 | Computer Assoc. Int'l Inc. (L) | 26.75 | -2.00 | -7.0 |
| CPWR | 40.00 | 8.13 | Compuware Corp. (L) | 8.13 | -0.84 | -9.4 |
| DCTM | 106.00 | 12.18 | Documentum | 61.13 | -34.25 | -35.9 |
| EFII | 69.31 | 22.00 | Electronics For Imaging | 24.81 | -3.00 | -10.8 |
| HNCS | 130.00 | 29.56 | Hnc Software | 50.50 | -6.81 | -11.9 |
| HYSL | 65.00 | 15.12 | Hyperion Software | 26.63 | -5.88 | -18.1 |
| IOXC | 49.12 | 10.37 | IOX Systems | 14.97 | -1.59 | -9.6 |
| INFA | 110.87 | 16.06 | Informatica Corp. | 90.00 | 4.75 | 5.6 |
| IFMX | 21.25 | 4.25 | Informix Software Inc. | 4.31 | -1.38 | -24.2 |
| INTU | 90.00 | 22.50 | Intuit | 38.06 | -4.19 | -9.9 |
| JKHY | 54.50 | 15.50 | Jack Henry Associates (H) | 49.50 | 1.91 | 4.0 |
| JDEC | 48.31 | 10.25 | J.D. Edwards & Co. | 15.06 | -0.25 | -1.6 |
| LGTOE | 82.50 | 9.25 | Legato Systems Inc. | 10.94 | -1.06 | -8.9 |
| MACR | 120.87 | 27.37 | Macromedia Inc. (H) | 79.00 | -32.75 | -29.3 |
| MANU | 70.25 | 9.06 | Manugistics Group Inc. | 62.25 | 2.75 | 4.6 |
| MENT | 21.00 | 7.75 | Mentor Graphics | 20.00 | 0.13 | 0.6 |
| MSFT | 119.93 | 60.37 | Microsoft Corp. | 72.06 | -6.94 | -8.8 |
| NETA | 37.18 | 14.43 | Network Associates | 21.66 | -1.78 | -7.6 |
| GMH | 46.66 | 16.25 | Network General | 30.00 | -3.44 | -10.3 |
| NOVL | 44.56 | 7.87 | Novell Inc. | 10.44 | 0.91 | 9.5 |
| ORCL | 90.00 | 17.34 | Oracle Corp. | 76.13 | 0.06 | 0.1 |
| PMTC | 35.93 | 7.37 | Parametric Technology Corp. | 10.69 | -1.81 | -14.5 |
| PSFT | 27.75 | 12.00 | PeopleSoft Inc. | 21.69 | 1.06 | 5.2 |
| PIXR | 50.37 | 32.20 | Pixar | 34.75 | -1.25 | -3.5 |
| RATL | 113.75 | 26.37 | Rational Software Corp. | 108.75 | 3.25 | 3.1 |
| RHAT | 151.31 | 7.00 | Red Hat Inc. | 25.75 | 1.19 | 4.8 |
| QSFT | 98.12 | 7.00 | Quest Software | 59.00 | -4.69 | -7.4 |
| SAP | 85.93 | 29.37 | SAP AG | 58.19 | 6.19 | 11.9 |
| SCUR | 29.62 | 2.31 | Secure Computing Corp. | 18.19 | 0.94 | 5.4 |
| SDRC | 20.00 | 8.81 | Structural Dynamics Research | 15.25 | 0.06 | 0.4 |
| SYBS | 31.00 | 9.50 | Sybase Inc. | 23.94 | 1.94 | 8.8 |
| SYMC | 81.62 | 25.37 | Symantec Corp. | 61.94 | 8.56 | 16.0 |
| SNPS | 75.62 | 30.62 | Synopsis (L) | 32.00 | -0.50 | -1.5 |
| SCTC | 28.37 | 10.00 | Systems & Computer Technology | 20.00 | 1.75 | 9.6 |
| TIBX | 147.00 | 5.00 | Tibco Software Inc. | 114.44 | -13.19 | -10.3 |
| TSAI | 48.12 | 11.37 | Transaction Sys. Architects | 18.50 | -2.56 | -12.2 |
| VRTS | 174.00 | 20.63 | Veritas Software Corp. | 110.44 | -24.19 | -18.0 |
| WIND | 66.12 | 13.37 | Wind River Systems Inc. | 31.63 | -2.75 | -8.0 |
| **TELECOMMUNICATIONS CARRIERS** OFF -4.1% | | | | | | |
| AT | 91.81 | 55.87 | Alltel Corp. | 61.88 | 0.00 | 0.0 |
| ANDW | 42.06 | 11.18 | Andrew Corp. | 32.25 | 0.13 | 0.4 |
| T | 61.00 | 31.25 | AT&T | 34.00 | 1.00 | 3.0 |
| BCE | 137.50 | 21.06 | BCE Inc. | 24.13 | -0.88 | -3.5 |
| BEL | 69.50 | 47.37 | Bell Atlantic | 50.81 | 0.00 | 0.0 |
| BLS | 53.50 | 34.93 | Bell South | 39.63 | -1.13 | -2.8 |
| BRW | 41.06 | 16.31 | Cincinnati Bell Inc. | 27.88 | -1.69 | -5.7 |
| CMCSK | 57.68 | 27.87 | Comcast | 36.75 | -0.94 | -2.5 |
| CQ | 37.06 | 15.37 | Comsat Corp. | 26.00 | -0.13 | -0.5 |
| CDX | 58.37 | 34.25 | Cox Communications Inc. | 43.06 | -0.06 | -0.1 |
| GSTRF | 53.75 | 5.81 | Globalstar Telecom. Ltd. | 7.94 | -2.69 | -25.3 |
| GTE | 78.50 | 55.81 | GTE Corp. | 62.25 | 0.00 | 0.0 |
| NXTL | 82.93 | 22.68 | Nextel Communications | 69.69 | -2.50 | -3.5 |
| SPDT | 74.25 | 32.87 | Panamsat | 36.50 | -4.44 | -10.8 |
| QCOM | 200.00 | 33.96 | Qualcomm | 61.81 | -2.19 | -3.4 |
| SBC | 59.87 | 34.81 | SBC Communications | 43.25 | -1.50 | -3.4 |
| FDN | 75.93 | 42.56 | Sprint Corp. (L) | 43.00 | -6.63 | -13.4 |
| TOS | 137.00 | 65.81 | Telephone and Data Systems | 124.81 | 3.31 | 2.7 |
| U5W | 92.87 | 51.75 | U5 West | 85.75 | 0.00 | 0.0 |
| VIA | 72.00 | 38.43 | Viacom (H) | 68.25 | -2.56 | -3.6 |
| WCII | 66.50 | 24.00 | Winstar Communications Inc. | 36.63 | -3.38 | -8.4 |
| WCOM | 61.33 | 35.87 | MCI Worldcom Inc. | 44.88 | -4.19 | -8.5 |
| **SERVICES** UP 1.4% | | | | | | |
| ACXM | 35.93 | 14.56 | Acxiom Corp. | 27.13 | -2.38 | -8.1 |
| ACS | 53.00 | 31.00 | Affiliated Computer Servs | 41.63 | 5.13 | 14.0 |
| AMSY | 44.37 | 19.75 | American Mgt. Systems | 27.25 | -5.75 | -17.4 |
| AUD | 57.93 | 37.37 | Automatic Data Processing | 54.00 | 0.88 | 1.8 |
| BSYS | 69.00 | 41.37 | Bisys Group Inc. | 62.00 | 0.63 | 1.0 |
| CATP | 27.00 | 6.75 | Cambridge Technology Ptnrs | 9.31 | 1.28 | 16.0 |
| CEN | 33.25 | 14.75 | Ceridian | 23.38 | -0.88 | -3.6 |
| CBR | 29.81 | 10.75 | Ciber Inc. (L) | 10.81 | -0.13 | -1.1 |
| COO | 57.25 | 17.43 | Comdisco | 29.88 | 3.00 | 11.2 |
| CHRZ | 27.12 | 10.37 | Computer Horizons Corp. | 13.00 | 0.19 | 1.5 |
| CSC | 99.87 | 57.93 | Computer Sciences | 65.88 | -6.25 | -8.7 |
| DST | 92.69 | 51.18 | Dst Systems Inc. (H) | 92.69 | 10.25 | 12.4 |
| EDS | 76.68 | 38.37 | Electronic Data Systems | 44.19 | 2.63 | 6.3 |
| FOC | 57.68 | 38.93 | First Data Group | 48.44 | 0.69 | 1.4 |
| FISV | 50.37 | 24.12 | Fiserv | 49.63 | 4.69 | 10.4 |
| IT | 23.37 | 9.58 | Gartner Group | 14.06 | 0.38 | 2.7 |
| KEA | 35.00 | 18.06 | Keane | 21.81 | -2.50 | -10.3 |
| NDC | 52.06 | 20.75 | National Data | 26.19 | 0.44 | 1.7 |
| PAYX | 44.88 | 15.70 | Paychex Inc. | 44.88 | 2.58 | 6.1 |
| PER | 29.50 | 9.31 | Perot Systems Corp. | 10.00 | -0.81 | -7.5 |
| REGI | 9.75 | 1.25 | Renaissance Worldwide (L) | 1.69 | 0.38 | 28.8 |
| REY | 33.00 | 18.62 | Reynolds & Reynolds | 18.75 | -0.25 | -1.3 |
| SFE | 99.00 | 15.85 | Safegard Scientifics | 35.13 | -1.19 | -3.3 |
| SAPE | 151.18 | 23.87 | Sapient Corp. | 128.19 | 8.16 | 6.8 |
| SDS | 40.00 | 16.87 | Sungard Data Systems | 33.63 | 3.31 | 10.9 |
| SYNT | 20.93 | 7.87 | Syntel Inc. | 9.75 | 0.13 | 1.3 |
| TECD | 52.12 | 18.00 | Tech Data (H) | 46.13 | -3.25 | -6.6 |
| TENF | 76.87 | 7.50 | TenFold Corp. | 9.69 | -1.38 | -12.4 |
| TSS | 20.62 | 14.12 | Total System Services Inc | 18.38 | 0.19 | 1.0 |
| TSAI | 48.12 | 11.37 | Transaction Sys. Architects | 18.50 | -2.56 | -12.2 |
| **NETWORK** OFF -2.7% | | | | | | |
| COMS | 119.75 | 22.62 | 3Com Corp. | 67.63 | -2.75 | -3.9 |
| ADCT | 45.12 | 8.59 | ADC Telecommunicatrons Inc | (H)42.81 | 3.47 | 8.8 |
| ANTC | 61.25 | 23.25 | Antec | 40.44 | -8.56 | -17.5 |
| CS | 52.75 | 11.12 | Cabletron Systems | 29.75 | 0.19 | 0.6 |
| CNEBF | 6.75 | 1.43 | Call-Net Enterprises (L) | 1.63 | -0.25 | -13.3 |
| CSCO | 82.00 | 28.07 | Cisco Systems Inc. | 68.31 | 0.63 | 0.9 |
| ECIL | 39.87 | 23.75 | ECI Telecom (H) | 36.09 | -2.59 | -6.7 |
| ENTU | 150.00 | 18.31 | Entrust Technologies Inc. | 32.19 | -1.50 | -4.5 |
| EPRE | 40.56 | 6.25 | ePresence Inc. | 9.03 | 0.94 | 11.6 |
| HRS | 39.75 | 15.50 | Harris Corp. | 34.25 | -3.06 | -8.2 |
| GMH | 46.66 | 16.25 | Hughes Electronics/GM | 30.00 | -3.44 | -10.3 |
| ERICY | 26.31 | 6.87 | LM Ericsson | 20.13 | -2.44 | -10.8 |
| JNPR | 181.25 | 20.33 | Juniper Networks Inc. (H) | 162.75 | -10.75 | -8.2 |
| LU | 84.18 | 49.81 | Lucent Technologies | 51.25 | -11.00 | -17.7 |
| MAOGF | 17.37 | 1.43 | Madge Networks | 3.75 | -0.38 | -9.1 |
| NCOI | 9.62 | 1.03 | Network Computing Dev | 2.03 | -0.09 | 4.4 |
| NWK | 14.81 | 7.31 | Network Equipment Tech. | 10.00 | -0.31 | -3.0 |

| EXCH | 52-WEEK | RANGE | | JULY 21 2 PM | WK NET CHANGE | WK PCT CHANGE |
|---|---|---|---|---|---|---|
| NOK | 62.50 | 19.26 | Nokia Corp. | 53.69 | -1.38 | -2.5 |
| NT | 80.37 | 19.90 | Northern Telecom Ltd. (H) | 80.31 | 1.31 | 1.7 |
| PCTL | 15.21 | 1.87 | Picturetel | 4.13 | 0.63 | 17.9 |
| SFA | 90.37 | 16.90 | Scientific Atlanta | 80.25 | -6.50 | -7.5 |
| TLAB | 77.25 | 41.81 | Tellabs Inc. | 63.25 | -12.44 | -16.4 |
| U5W | 92.87 | 51.75 | U5 West | 85.75 | 0.00 | 0.0 |
| VRLK | 22.00 | 1.81 | Verilink | 12.88 | 1.88 | 17.0 |
| W5TL | 40.75 | 6.43 | Westell Technology Inc | 29.08 | 4.25 | 17.1 |
| **SEMICONDUCTORS CHIPS & EQUIPMENT** OFF -7.1% | | | | | | |
| AOPT | 63.56 | 15.37 | Adaptec Inc. | 22.13 | 1.75 | 8.6 |
| AMD | 97.00 | 15.62 | Advanced Micro Devices | 81.88 | 5.25 | 6.0 |
| ALTR | 125.12 | 35.06 | Altera (H) | 113.31 | 6.75 | 5.6 |
| AOI | 100.00 | 20.81 | Analog Devices | 73.08 | -12.63 | -14.7 |
| AMAT | 115.00 | 31.12 | Applied Materials | 79.81 | -8.88 | -10.0 |
| ASML | 50.25 | 17.83 | ASM Lithography Holding | 44.25 | -1.50 | -3.3 |
| FCS | 49.50 | 18.50 | Fairchild Semiconductor Corp. | 35.50 | -4.69 | -11.7 |
| HRS | 39.75 | 15.50 | Harris Corp. | 34.25 | -3.06 | -8.2 |
| INTC | 147.50 | 59.25 | Intel Corp. (H) | 139.94 | -4.06 | -2.8 |
| KLAC | 97.75 | 29.90 | Kla Instruments | 51.94 | -9.44 | -15.4 |
| LLTC | 74.75 | 27.62 | Linear Technology | 61.94 | -5.81 | -8.6 |
| LSI | 90.37 | 21.56 | LSI Logic | 48.06 | -9.75 | -16.9 |
| MXIM | 77.68 | 30.03 | Maxim Integrated Products | 69.94 | -4.81 | -8.4 |
| MU | 97.50 | 20.31 | Micron Technology (H) | 84.88 | -9.31 | -9.9 |
| MOT | 61.54 | 27.33 | Motorola | 36.94 | -1.56 | -4.1 |
| NSM | 85.93 | 22.06 | National Semiconductor | 42.56 | -10.75 | -20.2 |
| STM | 73.87 | 21.27 | SGS-Thomson Microelectronics | 62.31 | -3.06 | -4.7 |
| SLR | 49.50 | 28.25 | Solectron Corp. | 46.69 | -0.38 | -0.8 |
| TER | 115.43 | 26.93 | Teradyne | 69.63 | -4.63 | -6.2 |
| TXN | 99.78 | 33.54 | Texas Instruments | 63.44 | -6.63 | -9.5 |
| JDSU | 153.42 | 19.31 | Uniphase | 134.81 | 25.63 | 23.5 |
| VTSS | 115.68 | 28.59 | Vitesse Semiconductor Corp | 65.50 | -9.44 | -12.6 |
| XLNX | 98.31 | 28.68 | Xilinx | 78.13 | -16.94 | -17.8 |
| **COMPUTER SYSTEMS** OFF -2.6% | | | | | | |
| AAPL | 75.18 | 22.59 | Apple Computer Inc. (L) | 53.38 | -4.25 | -7.4 |
| ASPX | 19.00 | 3.87 | Auspex Systems | 5.63 | 0.78 | 16.1 |
| BEOS | 39.56 | 3.28 | Be Inc. | 4.25 | 0.25 | 6.3 |
| CPQ | 34.00 | 18.25 | Compaq | 27.94 | 0.25 | 0.9 |
| DELL | 59.68 | 35.00 | Dell Computer Corp. | 52.31 | -0.69 | -1.3 |
| GTW | 84.00 | 28.37 | Gateway 2000 Inc. | 62.56 | -3.31 | -5.0 |
| HWP | 155.50 | 67.00 | Hewlett-Packard Co. | 122.50 | -12.06 | -9.0 |
| HIT | 164.50 | 91.00 | Hitachi Ltd | 122.00 | -7.81 | -6.0 |
| IBM | 139.18 | 89.00 | IBM | 114.50 | 11.19 | 10.8 |
| MUEI | 20.68 | 8.18 | Micron | 11.13 | -0.63 | -5.3 |
| MOT | 61.54 | 27.33 | Motorola | 38.94 | -1.56 | -4.1 |
| NATI | 59.50 | 25.50 | National Instruments Corp. | 44.00 | -5.38 | -10.9 |
| NCR | 52.62 | 26.68 | NCR | 35.56 | -3.75 | -9.5 |
| NIPNY | 162.00 | 62.75 | NEC | 139.94 | -12.56 | -8.2 |
| PRCM | 89.75 | 5.62 | Procom Tech Inc. | 50.44 | -5.81 | -10.3 |
| SGI | 18.87 | 3.06 | Silicon Graphics Inc. | 4.63 | 0.19 | 4.2 |
| SNE | 157.37 | 54.96 | Sony | 97.31 | -4.31 | -4.2 |
| SUNW | 106.75 | 32.93 | Sun Microsystems | 104.19 | 10.63 | 11.4 |
| TRCD | 22.94 | 2.75 | Tricord Systems (H) | 22.13 | 1.50 | 7.3 |
| UIS | 49.68 | 9.81 | Unisys (L) | 9.81 | -3.69 | -27.3 |
| **INTERNET** UP 0.9% | | | | | | |
| AMZN | 113.00 | 32.46 | Amazon.com | 41.00 | -1.06 | -2.5 |
| AOL | 95.81 | 38.46 | America Online | 58.38 | -2.81 | -4.6 |
| ATHM | 59.75 | 15.87 | @home Corp. | 16.88 | -2.56 | -13.2 |
| CKFR | 125.62 | 23.12 | Checkfree | 67.81 | 7.50 | 12.4 |
| CYCH | 16.00 | 4.25 | Cybercash Inc. | 5.56 | -0.06 | -1.1 |
| EBAY | 127.50 | 35.14 | eBay Inc. | 59.00 | -1.88 | -3.1 |
| ETYS | 86.00 | 4.50 | eToys Inc. | 5.75 | 0.13 | 2.2 |
| EGRP | 42.62 | 13.12 | ETrade Group Inc. | 17.44 | -1.69 | -8.8 |
| LCOS | 93.62 | 28.56 | Lycos Inc. | 57.88 | 8.75 | 17.8 |
| DMKT | 65.50 | 7.87 | Open Market Inc. | 8.66 | -0.91 | -9.5 |
| OTEX | 60.62 | 9.50 | Open Text Corp. | 19.88 | -0.25 | -1.2 |
| PCLN | 118.37 | 32.37 | Priceline.com Inc. | 40.06 | -0.06 | -0.2 |
| PRGYA | 35.43 | 8.25 | Prodigy Communications | 10.38 | 0.00 | 0.0 |
| P5IX | 60.93 | 15.53 | P5INet Inc. | 22.19 | 1.31 | 6.3 |
| RSAS | 93.06 | 15.87 | Security Dynamics | 68.63 | -2.38 | 3.3 |
| SPYG | 95.25 | 9.68 | Spyglass Inc. | 41.88 | 3.81 | 10.0 |
| WINK | 75.00 | 6.00 | Wink Communications Inc. | 28.38 | 1.31 | 4.8 |
| YHOO | 250.06 | 55.00 | Yahoo Inc. | 139.00 | 12.13 | 9.6 |
| **STORAGE & PERIPHERALS** OFF -2.9% | | | | | | |
| ADPT | 63.56 | 15.37 | Adaptec Inc. | 22.13 | 1.75 | 8.6 |
| APCC | 48.50 | 16.00 | American Power Conversion (H) | 47.44 | 3.31 | 7.5 |
| CANNY | 51.75 | 25.75 | Canon Inc. | 47.75 | -1.75 | -3.5 |
| DBO | 32.87 | 19.68 | Diebold Inc. | 27.44 | -0.81 | -2.9 |
| EK | 78.28 | 53.18 | Eastman Kodak Co. | 58.25 | -2.81 | -4.6 |
| EMC | 89.88 | 26.25 | EMC (H) | 89.88 | 9.81 | 12.3 |
| IOM | 6.37 | 2.87 | Iomega | 4.00 | -0.19 | -4.5 |
| MXTR | 14.81 | 4.62 | Maxtor Corp. | 10.69 | 0.19 | 1.8 |
| NTAP | 124.00 | 12.43 | Network Applinace Inc. | 108.25 | 12.25 | 12.8 |
| LXK | 135.87 | 46.06 | Lexmark International Group Nc. | 46.06 | -13.81 | 23.1 |
| SEG | 75.43 | 25.12 | Seagate Technology | 54.06 | -9.38 | -14.8 |
| STK | 27.18 | 10.50 | Storage Technology (L) | 11.00 | -0.38 | -3.3 |
| TEK | 87.31 | 27.12 | Tektronix | 66.50 | -17.19 | -20.5 |
| XRX | 60.31 | 18.50 | Xerox | 19.06 | -1.19 | -5.9 |

KEY: **(H)** = New annual high reached in period
**(L)** = New annual low reached in period

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# Avis

sec., as the answer.

"This will enhance the customer experience.... It's going to give the customer a very quick way to check in and return a vehicle," Kinder said in an interview last week.

Bob Egan, an analyst at Gartner Group Inc. in Stamford, Conn., said that to his knowledge, Avis is the first rental car company to adopt wireless LANs to support its operations. Egan said the Avis rollout is indicative of how this is "the year of the wireless LAN," with a wide range of businesses expected to adopt the technology to support an increasingly mobile workforce with mobile applications that tie into enterprise systems.

Vicki DeMarco, executive vice president for information technology at Avis Rental Car Inc., said the wireless LAN system is being supplied by Symbol Technologies Inc. in Holtsville, N.Y. Avis Rental Car is a unit of Avis Group, both of which are based in Garden City, N.Y.

## Efficiency in Sight

The system will provide the company with "a complete wireless infrastructure that will extend beyond check-in and checkout," DeMarco said. "It will also support maintenance, repairs and training.... It will help make our overall operation more efficient."

Symbol will provide Avis with its model 7500 handheld terminals running Microsoft Corp.'s Windows CE 3.0 operating system, according to Vinnie Luciano, Symbol's vice president of product management. Avis Europe PLC in Bracknell, U.K., which is separate from Avis Group, earlier this year tapped Symbol to develop an advanced car check-in and return information system that's based on Microsoft's Pocket PC.

DeMarco said Avis Group opted for the Symbol Windows CE-powered handheld because of its adaptability. The company wanted a terminal that's "flexible, programmable and can be easily enhanced," she said. "We don't want to be locked into something that can't be changed."

Avis and Symbol have kicked off a four- to six-month application development effort that DeMarco said will help the firm "discover" uses and functions for the CE device "once we put it into people's hands."

With the 7500, billing information is transmitted to wireless LAN access points at an airport. It's then transmitted to a local PC or server, which in turn feeds into the company's enterprise information system.

Avis also wants to incorporate the wireless LAN technology into its airport shuttle bus fleet, letting customers check in while proceeding to the lot. The terminal on the shuttle would transmit the data to the Avis corporate system once it's within range of the LAN, which Luciano said is "a couple of hundred feet, depending on the installation."

**AVIS PLANS to speed up customer check-in and car returns using Symbol Technologies' model 7500 handheld running Windows CE**

The Symbol 7500 includes a bar code scanner and what Luciano called a "one-handed keyboard." They should give Avis agents greater flexibility than the older handheld terminals, he said.

Avis has begun pilot testing of the wireless LAN systems at four major airports — Chicago's O'Hare, New York's LaGuardia, San Francisco and Pittsburgh — with each representing various levels of difficulty of installation, Luciano said.

For example, LaGuardia poses less of a challenge than the new central rental-car building at the San Francisco airport, where Avis operates on multiple levels. Luciano said that in a location such as San Francisco, Avis may need to install as many as 20 access points, while at smaller airports, "they probably will only need two: one for the counter, and one for the lot," he said.

Though the pilots are under way, Avis hasn't specified a time frame for the deployment.

Because the Symbol LAN operates under the Wireless Ethernet Compatibility Alliance standard embraced by more than 30 manufacturers, DeMarco said she also sees an opportunity to develop partnerships with public-access wireless LAN companies such as Wayport Inc. in Austin, Texas, and MobileStar Network Corp. in Richardson, Texas. These companies have set up wireless LANs at major airports to provide road warriors with high-speed Internet access for a fee.

Egan said a partnership between Avis and the public-access companies "could provide Avis with a revenue stream if customers can use the network."

The Avis decision to go with wireless LANs was a "smart move," said Egan, as the higher-speed LAN should improve customer service.

Spokesmen for the The Hertz Corp. in Park Ridge, N.J., and Alamo Rent A Car LLC in Fort Lauderdale, Fla., were unable to confirm by deadline whether their companies have any wireless LAN plans.

While Avis declined to disclose the value of the deal with Symbol, Egan estimated that it's likely to be in the neighborhood of $3 million.

*Continued from page 1*

# Intranets

al intranet managers at last week's Intranet Content Management Conference, run by the International Quality & Productivity Center, said they were also working on taxonomies — meaningful classifications of content.

Some, like Merrill Lynch's pilot project staffers, took additional painstaking steps to turn content into components, or objects, that are stored in a repository. Then they slapped meta tags onto the components to make the content easier to manage, reuse and categorize. Several staffers at other companies said they're evaluating portal software and content management packages.

"This year we've seen much more awareness of the mess we have on our hands, and we're seeing some initiatives to try to bring sanity to the insanity," said Gene Phifer, an analyst at Stamford, Conn.-based Gartner Group Inc.

Hershey Foods Corp.'s 5-year-old intranet has individual sites maintained by various company departments. But when those departments wanted to share their growing pools of information, "it was hard to determine exactly where to go to find it," said Joni Pfautz, Internet/intranet coordinator at the Hershey, Pa., company.

Within the past year, small focus groups have worked on a companywide taxonomy, trying to "name categories the way folks would look for" information, Pfautz said. A dozen or so top-level categories have been implemented on the home page, and Pfautz is trying to coordinate 70-plus "gatekeepers" of intranet sites to use the taxonomy and contribute links to different sites.

But one stumbling block for many companies has been cost, as attention gets focused on their external sites. Abigail Shaw, information master at Fireman's Fund Insurance Co. in Novato, Calif., said she's working to show hard numbers to quantify the benefits so she can make a business case for intranet improvements.

Kelly Thul, intranet coordinator at State Farm Insurance Cos. in Bloomington, Ill., noted that portal and content management packages can be expensive and create the need for fundamental changes to a company's intranet content development approach.

State Farm is planning the first major redesign of its 4-year-old intranet in hope of offering more personalized and flexible content, but the "handcrafted HTML" pages it has been creating won't put his company in position to do that, Thul said, adding, "You've got to start looking at tools.".

To date, many companies have stored monolithic Web pages in servers for delivery to their end users. But in the future, they want to be able to break down those pages into pieces of data that can be pulled together on the fly and presented in Web pages that are more useful to their employees. Those dynamic pages could include data from back-office applications.

"We want a more integrated intranet," said Jeff Thompson, corporate webmaster at Syncrude Canada Ltd. He said the Fort McMurray, Alberta-based company wants to "marry" unstructured information with the structured data from various client/server and back-office applications, such as individualized retirement benefits or vacation time.

A Syncrude team also is working with a consultant on a corporatewide taxonomy to create a more organized intranet for the 3,500 employees and 2,000 contract workers who use it.

AT A GLANCE

## Coping With Intranet Growth

*Types of products companies are turning to include:*

- **Portal creation software** that can provide search, index, content management and personalization capabilities to help companies build a single comprehensive window to information. Vendors include Epicentric, IBM, iPlanet, Oracle, Plumtree, SAP, Sequoia, Sybase and Viador.
- **Content management tools** from vendors like Allaire, Eprise, Interwoven, IntraNet Solutions, NCompass and Vignette.
- **Categorization/taxonomy creation tools** from vendors like Autonomy, Semio.

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FRANK HAYES/FRANKLY SPEAKING

# Customers rule

CUSTOMERS DRIVE E-BUSINESS. Let me say that again: *Customers* drive e-business. Not sellers — buyers. Not us — them. Yes, we're the ones doing all the work, building Web stores and wiring them to our back-end systems. But customers are the ones who control where they'll buy, how they'll buy and what they'll do on our Web sites.

Which explains why two-thirds of online shoppers abandon their shopping carts before checking out. And why, even as the number of people going online is increasing, the percentage actually shopping is dropping.

Customers browse. They window-shop. They change their minds. They find a better price. They get interrupted. And a lot of them just aren't ready to buy online.

This is important to understand because IT people and Web designers are getting beat up a lot these days over those statistics. Sometimes we're the ones beating ourselves up.

We (or our bosses) assume all those dumped shopping carts are due to lousy Web site design or flaky servers. We assume that a better this or a newer that — more glitz or features or performance or *something* — will turn more of those Web surfers into shoppers and more shoppers into buyers.

We assume wrong.

Sure, we can — we *must* — fix problems and make sure our sites are designed cleanly and work well. That's a real challenge, and one for which we can take full responsibility.

But customers control the game. In consumer Web stores, in business-to-business exchanges, in every kind of e-commerce.

Think back 10 years or so, when Sears, Wal-Mart and other big retailers told their suppliers that, if they wanted to remain suppliers, they had to install electronic data interchange (EDI) systems and start sending their invoices electronically.

Sears and Wal-Mart were the buyers, so they called the shots on EDI. They dragged thousands of their suppliers into e-commerce — unwillingly, in most cases. Those suppliers could never have forced the big retailers into that kind of big, expensive technology change. But the customers run the game, so they get to decide.

Or look at the Big Three automakers and Covisint, the online exchange they want to build for buying parts. They've got technical hurdles. They've got organizational challenges. They've got antitrust issues. What they haven't got is any doubt they can force suppliers into line. They're the buyers, so they can dictate what technology the sellers have to use.

Think consumers are any different? They make the decisions about e-commerce, too. They decide if they want to buy online. Or window-shop online and buy in a brick-and-mortar store. Or start shopping carts in a half-dozen Web stores at once to comparison shop, eventually dumping all but the one from which they finally buy. Or ignore Web shopping entirely.

*Stop worrying about abandoned shopping carts.*

They also decide whether their modem is cable or 28.8, and whether they'll install Shockwave or activate JavaScript or swallow cookies. They decide whether they want customer service over the Web or by e-mail or on the phone or face-to-face.

Customers rule this game. They always have, and they always will.

So stop worrying about abandoned shopping carts. Instead, spend your time sifting through server logs looking for evidence of your customers' technology decisions and shopping styles. Unlike Wal-Mart and Ford, they won't tell you outright. But the hints are there — in where they go, what they avoid and which functions they use or don't use.

If you can make sense of the clues, you can fine-tune your Web store — not just for glitz or performance, but for what your customers demand.

That way, when they *do* decide to buy online, you'll be ready. ◗

*Hayes, Computerworld's staff columnist, has covered IT for more than 20 years. His e-mail address is frank_hayes@computerworld.com.*

## SHARK TANK

**SIGN BY THE COMPUTER ROOM** door reads, "Please press button to exit." An arrow points to the small red button that momentarily disables the door's security alarm. A foot away in the other direction is a larger red button under a plastic cover – it shuts off all electricity in an emergency. A non-IT manager on a visit sees the sign, ignores the arrow, forces open the plastic cover, hits the big red button and plunges the place into silent darkness. Then he rushes out the door – setting off the alarm. Once calm (and power) is restored, a pilot fish asks him why he did it. His response: "Red button? What red button?"

**NEW "HIGHER SECURITY"** Web-based document-retrieval system goes online, and everyone gets training. One handout gives this pilot fish a chuckle, a screen capture with a note beside one of the links, reading "Do *not* click on this – the server will shut down." The fish asks about it, and the instructor confirms his suspicion: There's no way to determine who's responsible if anyone *should* click on it. Accidentally, of course.

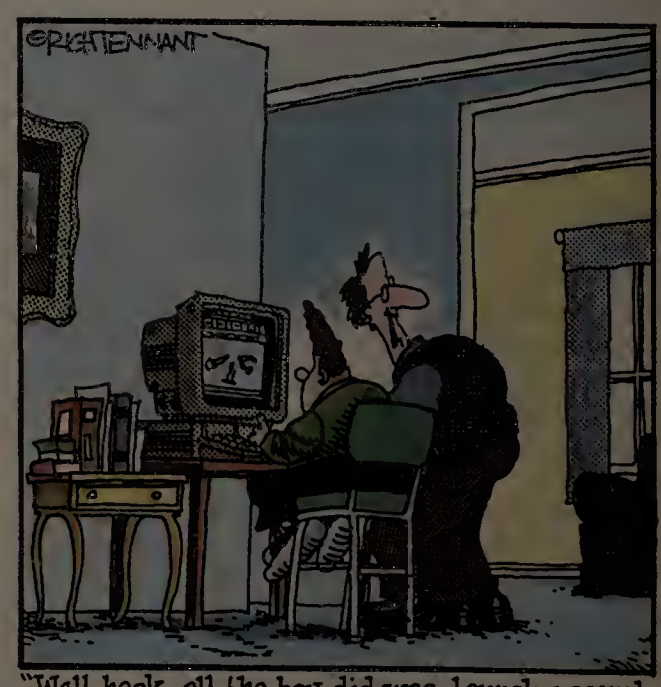
**TECH SUPPORT PILOT FISH** gets a call from a frequent help desk user ("You understand me and know that it's the machine, it's not me," she says). She's trying to pretty up her terminal emulator with colors, fonts and backgrounds, but it won't stay customized. The fish watches as she fiddles for 10 minutes to get it just right. Then she clicks on the Cancel button. "See," she says, "it goes away!"

**IT MANAGER GETS CALLED** on the carpet for "overzealous" cell phone use. Seems he's been responding to customer pages on his cell phone, and he's told to stop. When he points out that besides making customers happier, the amount they're billed more than covers the cost of the cell call, the boss just says, "That's not company policy."

**CONSULTANT PILOT FISH** and his team are given new PCs with ergonomic keyboards – the broken-in-the-middle kind that drive techies nuts. The boss explains, "We need to standardize our equipment to cut maintenance costs. Unless you have a medical excuse from your doctor, this is what you use."

Forget the excuses: **sharky@computerworld.com** If your story prints, you get a snazzy Shark shirt. And get more daily at *computerworld.com/sharky*.

## The 5th Wave




"Well heck, all the boy did was launch a search on the Web and up comes Tracy's retainer, your car keys and my bowling trophy here on a site in Seattle!"

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